



ADDENDUM 4 TO THE EXPANDED PRELIMINARY ASSESSMENT AND SOURCE CONTROL EVALUATION 2015 STORMWATER STORM DRAIN SAMPLING RESULTS BNSF WILLBRIDGE SWITCHING YARD, PORTLAND, OREGON

This fourth addendum to the Expanded Preliminary Assessment (XPA) and Source Control Evaluation (SCE) for BNSF Railway Company's (BNSF) Willbridge Switching Yard (AECOM 2011) presents the results of 2015 wet weather stormwater sampling at Willbridge Yard. This sampling completes the work requested by the Oregon Department of Environmental Quality (DEQ) in its July 28, 2014 letter (DEQ 2014a) as clarified by its March 2015 letter (DEQ 2015a).

In addition and as requested, this addendum summarizes prior information on the potential for a stormwater pathway at Willbridge Yard and documents that any limited groundwater infiltration to the storm drain pipes and the less than 0.1 acre stormwater drainage from Willbridge Yard does not adversely affect receptors in the Willamette River.

BNSF requests DEQ finalize its Source Control Decision (SCD) concluding that the Willbridge Yard stormwater pathway, including groundwater flow into the storm drain pipes, is not a current or reasonably likely future source of contaminants to the Willamette River, and does not require further source control investigation or source control measures.

BACKGROUND

BNSF has been evaluating soil, groundwater, and stormwater conditions at Willbridge Yard through the XPA/SCE process. Willbridge Yard is a switching yard where trains are assembled for transport and only insignificant petroleum sources have been present (currently and historically) at the switching yard. The only fueling that occurs at Willbridge Yard is emergency direct-to-locomotive (DTL) fueling. On the rare occasion when a locomotive is running out of fuel while at Willbridge Yard, a fueling truck is called in to fill the locomotive fuel tank. DTL fueling is completed in accordance with specific procedures to avoid spills. There are no reports or evidence of fuel releases or spillage associated with DTL fueling at the Willbridge Yard.

Two 300-gallon aboveground storage tanks were historically present at Willbridge Yard. One tank held diesel fuel for an air compressor, and the other tank held switch oil. Both tanks have been removed and soil sampling confirms that there were no releases. The only reported spill at the property was 10 to 15 gallons of diesel fuel from a refrigerator car in 1995. A cleanup was completed and remaining soil met cleanup criteria. Subsurface

investigation activities as part of the XPA/SCE included the shallow soil in areas of the former tanks and refrigerator car release, as well as other areas of the Yard. In addition, soil at the water table was tested. The sampling results confirm the absence of contaminants in the areas that were potential sources; sampling results indicate that rail switching operations at Willbridge Yard have not had an adverse effect on soil, groundwater, or stormwater. Current and historical site features, and investigation locations are shown on Figure 1.

DEQ prepared a draft SCD for Willbridge Yard. However, during the review process DEQ identified three issues and requested BNSF complete additional investigation prior to finalizing the draft SCD. The three issues were discussed in DEQ's July 28, 2014 letter to BNSF:

- The potential for unidentified piping connections from the site into the non-BNSF storm drain pipe running along the eastern site boundary
- Limited stormwater data collected from catch basin near the office (CB-44; the only catch basin on Willbridge Yard)
- Questions that shallow groundwater may (seasonally or otherwise) infiltrate into the non-BNSF stormwater drain along the eastern site margin.

To address these issues, DEQ requested BNSF complete the following:

1. Video surveying of stormwater piping to evaluate the overall condition and content of the drain pipe, and any stormwater intrusion.
2. Sampling stormwater including dry weather sampling if flow was observed and stormwater sampling if the storm drain pipe is blocked.

BNSF's preference was to complete site-wide dry weather sampling and stormwater sampling instead of the requested video. With the sampling completed, the video is unnecessary as described below. BNSF does not own the storm drain pipes beneath Willbridge Yard, and ownership is unclear at this time. These pipes are part of the Oregon Department of Transportation (ODOT) or the City of Portland (City) storm drain pipes.¹ If the video were to show storm drain damage or previously unidentified connections, the next step would be to sample the dry weather flow and stormwater flow from the storm drain pipes regardless, to identify any impacts associated with these infiltration points. Therefore, BNSF proposed to move forward directly with that sampling. In its March 2015 letter, DEQ agreed that additional site-wide stormwater sampling in combination with the

¹ The XPA/SCE originally identified these stormwater pipes crossing Willbridge Yard as ODOT's. Both ODOT and the City have claimed the other entity owns these storm drains. Due to this uncertainty in ownership, this Addendum 4 identifies these drain pipes, with connections to the Highway 30 system as non-BNSF storm drain pipes.

prior dry weather sampling performed in September 2014 could be completed in lieu of video surveying, as the ultimate goal of these evaluations is meaningful sample data.

The approach for the previous dry weather sampling described in an August 2014 work plan (Integral 2014b) was approved by DEQ (2014b) and completed in September 2014. All manholes were inspected for dry weather flow, and where sufficient flow was observed, manholes were sampled. Results were reported in Addendum 3 to the XPA/SCE (Integral 2014c). Addendum 3 also proposed site-wide stormwater sampling in lieu of a video of the storm drain. In its March 9, 2015 letter (DEQ 2015a) and follow-up e-mail (DEQ 2015b), DEQ approved this approach and requested that BNSF attempt to collect a “first flush” stormwater sample. Stormwater sampling was performed in March 2015. Associated correspondence for the stormwater sampling event is provided in Attachment A.

REVIEW OF STORM DRAIN LAYOUT AT WILLBRIDGE YARD

The XPA/SCE report (AECOM 2011) evaluated stormwater at Willbridge Yard, mapping the non-BNSF storm drain pipes passing beneath Willbridge Yard. The storm drain pipes beneath Willbridge Yard are shown on Figure 2. Willbridge Yard lies within a 533-acre drainage basin that discharges at City outfall OF-19. With one minor exception, stormwater at the Yard infiltrates. Stormwater in a 0.1-acre area including the Yard office roof and surrounding paved and gravel surfaces used for walkways and driveways is addressed by a combination of infiltration and drainage to a catch basin (CB-44). Catch basin CB-44 connects to the Phillips 66 (formerly Conoco) storm drain system. Stormwater from CB-44 and Phillips 66 inlets and downspouts drain to MH-11. Other flows from Phillips 66 drain to MH-9 and then to MH-11. Catch basin CB-44 is approximately two-thirds filled with granular material (silty sand and gravel).

With the exception of the 5-foot-long pipe from catch basin CB-44 (also plugged with sand and gravel) to the Phillips 66 storm drain system, none of the storm drain pipes beneath Willbridge Yard are owned by BNSF as shown on Figure 2. These non-BNSF storm drains beneath Willbridge Yard carry stormwater beneath Willbridge Yard that originates from the hills of Forest Park, portions of Highway 30, industrial and commercial facilities on the west side of Highway 30, and the Phillips 66 Tank Farm. Downstream of Willbridge Yard, the stormwater in these drains mixes with stormwater from other roadways and industrial facilities and ultimately discharges to the Willamette River at City Outfall 19 (OF-19).

The overall drainage basin for OF-19 includes approximately 533 acres. The City of Portland sampled stormwater solids in the South Manhole (City sample number AAP831). No analytes were detected at concentrations greater than Joint Source Control Strategy (JSCS) screening level values (SLVs); arsenic, cadmium and lead were detected at concentrations slightly greater than bioaccumulation SLVs (City of Portland 2010). The

City has concluded that discharges from OF-19 are unlikely to represent a significant source of contaminants to the river (BES 2013).

2015 STORMWATER SAMPLING RESULTS

The following stormwater observations and sampling was conducted on March 16, 2015:

- Observing stormwater flow in upstream storm drain vaults adjacent to Highway 30, downstream manholes on Willbridge Yard, and catch basin 44 (CB-44) on Willbridge Yard
- Sampling upstream and downstream flows where volumes were sufficient.

Per DEQ's request, storm drainage samples were analyzed for total petroleum hydrocarbons (TPH) gasoline and diesel ranges, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), Resource Conservation and Recovery Act (RCRA) 8 Metals, and phthalates (DEQ 2014a). Results of downstream sampling locations were compared to upstream concentrations, JSCS SLVs (DEQ and USEPA 2007), and the DEQ rank order stormwater charts² (DEQ 2010) to assess the potential for groundwater under Willbridge Yard to adversely affect receptors in the Willamette River.

Stormwater Event Preparation and Sampling

Per the work plan (Integral 2014b), sampling was focused on an event that met the storm event criteria provided in the *DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2010).³ Prior to the sampling event, Integral Consulting Inc. (Integral) monitored weather forecasts⁴ to determine if the predicted storm event was of sufficient magnitude and duration. All weather forecasts predicted greater than 1.5 inches of precipitation in the Portland Metro area from March 13 through 16, 2015. Because this event happened over a weekend, site access was not available and Integral made arrangements with BNSF personnel to collect samples on Monday, March 16, 2015.

Hourly precipitation data were acquired for the preceding and stormwater sampling event periods from the U.S. Geological Survey (USGS) Yeon Rain Gage located near Willbridge

² Appendix E to the DEQ Guidance for Evaluating Stormwater Pathways at Upland Sites.(DEQ 2010)

³ Storm event criteria are provided in DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010) for the following:

- Antecedent dry period of at least 24 hours (as defined by <0.1 inch over the previous 24 hours)
- Minimum predicted rainfall volume of >0.2 inch per event
- Expected duration of storm event of at least 3 hours.

⁴ NOAA hourly and graphical weather forecast: <http://forecast.weather.gov/MapClick.php?lat=45.52345&lon=-122.6762071&unit=0&lg=english&FcstType=graphical> and <http://graphical.weather.gov/sectors/pqr.php>. Also monitored local weather for Portland, Oregon through Accuweather.com.

Yard at 3395 NW Yeon Street⁵ and are plotted on Figure 3. A total of 2.53 inches of rainfall was recorded from March 13 through 16, 2015. The precipitation conditions during the stormwater sampling event met DEQ's storm event sampling criteria provided in the *DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2010). Due to site access restrictions, Integral could not sample within 30 minutes of stormwater discharge, which is the target for a first flush sample. However, the sampling event did capture a large storm event during a time when significant measureable rainfall had not been observed for more than a month. Prior to the sampling event, 0.08 inch of precipitation occurred over a 3-hour period on March 12, 2015. Previous to that time, there had not been significant precipitation since early February 2015.

On March 16, 2015, Integral observed stormwater drainage conditions in vaults upstream of Willbridge Yard on the east side of Highway 30, manholes downstream of Highway 30 on the Willbridge Yard, and CB-44 located on Willbridge Yard. Stormwater drainage samples were collected from seven of the eight manhole/catch basin observation locations. Stormwater manhole/catch basin observation and sample locations are summarized on Table 1 and shown on Figure 2. Photographs taken on March 16, 2015 sampling event are included in Attachment B.

Flow was observed in all upstream manhole locations. No flow was observed in manhole MH-9 from pipes originating from the Phillips 66 facility at the time of sampling (which include flow from CB-44). Flow rate measurements were attempted in manholes, but high flow volumes prevented accurate measurement. Flow rates in upstream Highway 30 manholes were generally similar to flow rates observed in downstream manholes.

Ten stormwater event grab samples were collected from the eight locations as specified in the work plan (Integral 2014b). With the exception of the sample from CB-44, samples were collected from flowing water in manholes. Samples were observed to be clear to slightly cloudy, with some sediment observed in samples collected from SW06, SW07, SW10, and SW12. Samples were submitted to Test America Laboratories in Tacoma, Washington, under chain-of-custody protocol and analyzed for the following:

- Northwest total petroleum hydrocarbon diesel range (NWTPH-Dx) and gasoline range (NWTPH-Gx) by Method NWTPH-DX and NWTPH-GX
- PAHs by U.S. Environmental Protection Agency (EPA) Method 8270 D-SIM
- PCB Aroclors by EPA Method 8082A
- Total and dissolved metals by EPA Method 6020

⁵ <http://or.water.usgs.gov/non-usgs/bes/yeon.html>

- Total and dissolved mercury by EPA Method 7470A
- Phthalates by EPA Method 8270D.

As noted above, stormwater was not flowing from the Phillips 66 stormwater system to manhole MH-9, and that flow, if present, would have included CB-44. Some standing water was present in CB-44, and a sample of this stormwater puddled on the granular material in CB-44 was collected (SW13) and submitted to Test America Laboratories with the remaining stormwater samples. The sample was cloudy and included solids. The volume of water in CB-44 was limited and insufficient to analyze all parameters. Analyses were prioritized based on the results of the November 2009 CB-44 stormwater solids data, focusing on PAHs and metals. The 2015 stormwater sample collected from CB-44 was analyzed for the following:

- Total and dissolved PAHs by EPA Method 8270 D-SIM
- Total and dissolved metals by EPA Method 6020
- Total and dissolved mercury by EPA Method 7470A.

The laboratory data package is provided in Attachment C.

Stage 2A data validation was conducted on the stormwater sample results (Attachment D). Data were qualified for method blank contamination, laboratory imprecision, and matrix interference. All results are usable for their intended purpose, and completeness was 100 percent.

Investigation Results and Evaluation

The March 2015 stormwater results are summarized below by analyte group and a comparison of results to JSCS SLVs. Results are provided on Table 2 for the March 2015 event. Previous sampling results since 2009 are provided in Table 3 for comparison purposes. Stormwater analytes that exceeded SLVs were plotted on the DEQ rank order stormwater charts from “Appendix E: Tools for Evaluating Stormwater Data” (DEQ 2010) and are provided in Attachment E. Results falling below the “knee of the curve” (i.e., the relatively flat portion of the curve with lower concentrations) suggest that the constituent is not impacting stormwater at the site and is within the range of concentrations observed at other industrial sites within Portland Harbor as provided in *DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2010). Results falling above the “knee of the curve” (i.e., the relatively steep portion of the curve with higher concentrations) are an indication that uncontrolled sources may be present (DEQ 2010).

Stormwater samples from manholes were either less than the JSCS SLV or plotted below the steep portion of the curve. Concentrations were similar at upstream and downstream

locations. The grab sample from catch basin CB-44 was collected from standing water and exhibited more turbid conditions than any of the other samples. As would be expected in a more turbid sample, total concentrations were biased high in the sample from CB-44 as metals and many organic chemicals sorb to solids which are present in higher concentrations in turbid samples.

TPH

Gasoline-range TPH was not detected above the laboratory method reporting limit in any of the stormwater drainage samples. Diesel-range and oil-range TPH were not detected above the laboratory reporting limit in any samples. TPH concentrations in the diesel and oil range were estimated in one of the two duplicate samples at the MH-11 influent pipe that drains from upstream manhole MH-HWY30-3 (SW05). Diesel-range and oil-range TPH concentrations were estimated to be 0.15 and 0.046 mg/L, respectively, and were below detection in the split sample. These estimated values are similar to reporting limits for other non-detected samples and are very low. There are no JSCS SLVs or DEQ rank order stormwater chart curves for TPH.

Total and Dissolved Metals

Cadmium, chromium, mercury, lead, and selenium were detected at or below respective JSCS SLVs identified by DEQ for upland source control screening (DEQ and USEPA 2007). No JSCS SLV exists for barium. Exceedances of JSCS SLVs are noted at the following metals and sampling locations:

- Dissolved and total arsenic concentrations exceeded the JSCS SLV in samples collected from all manholes but were in the range of, or below regional background concentrations⁶ (DEQ 2011). Total arsenic concentrations ranged from 0.29 µg/L at upstream location MH-HWY30-1 (Sample SW11) to 1.2 µg/L at South Manhole (influent pipe from MH11), and dissolved arsenic concentrations ranged from 0.15 µg/L at upstream MHHWY30-2 to 0.98 µg/L at South Manhole (influent pipe from MH11). The total arsenic concentration in the turbid standing water in CB-44 (Sample SW13) was 2 µg/L. The dissolved arsenic concentration from CB-44 was 0.27 µg/L, well within the range of other stormwater samples. With regard to the DEQ rank order stormwater chart curves, all the total arsenic concentrations fell below the knee of the curve, generally plotting on the lower/flat portion of the curve.
- Total silver was detected at a concentration of 0.13 µg/L, slightly above the JSCS SLV (0.12 µg/L) in Sample SW04 collected in MH-11 from the influent pipe from

⁶ Based on the available data, most Oregon waters have natural background levels of arsenic in the range of less than 1 microgram per liter (µg/L) up to 3 µg/L (DEQ 2011)

upstream location HWY30-2. The dissolved concentration was estimated at 0.099 µg/L, below the reporting limit. This total concentration plots on the lower portion of the knee of the curve and below the upper steep of the curve; the dissolved concentration plots on the lower, flat portion of the curve.

PAH Constituents

PAHs were detected in all upstream and downstream sampling locations except upstream location MH-HWY-30-3A (Sample SW06). PAHs concentrations exceeded respective JSCS SLVs in samples collected from location South Manhole (influent pipe from MH-11) and from the standing water in CB-44. In South Manhole (influent pipe from MH-11; SW09), chrysene was detected at a concentration of 0.02 µg/L and benzo[b]fluoranthene was detected at a concentration of 0.026 µg/L, both slightly above JSCS SLVs (0.018 µg/L).

In the sample from catch basin CB-44 (SW13), benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo(a)pyrene, indeno[1,2,3-cd]pyrene, and benzo[ghi]perylene were detected above respective JSCS SLVs. In all cases, concentrations exceeded the JSCS SLV by less than an order of magnitude and results from the filtered sample were below the JSCS SLV and below reporting limits.

All PAH concentrations in the filtered sample were either non-detect or were below respective JSCS SLVs. This shows that the PAHs are associated with the solids, and the dissolved concentrations, considered to be more representative of stormwater conditions, are below JSCS SLVs. Stormwater in CB-44 drains slowly through a pipe, clogged with granular material, that connects to the Phillips 66 stormwater system, and is essentially filtered.

Total PAH results, including the sample from CB-44, plot on the lower/flatter portion of the DEQ rank order stormwater chart curves, additionally showing total PAH constituents are not impacting stormwater discharging to City OF-19.

PCB Aroclors

Similar to previous storm drain sampling events, PCB Aroclors were not detected above the laboratory method reporting limit in any of the stormwater samples.

Phthalates

All phthalate concentrations were below the JSCS SLV with one exception. Bis(2-ethylhexyl)phthalate was detected in Sample SW04 collected from location MH-11 (influent pipe from upstream MH-HWY30-2). Although the estimated concentration of 3.6 µg/L

exceeds the JSCS SLV (2.2 µg/L), bis(2-ethylhexyl)phthalate concentrations plot below the knee of the curve on DEQ rank order stormwater charts.

SUMMARY OF 2015 STORMWATER SAMPLING

Stormwater flow passing beneath Willbridge Yard through the non-BNSF storm drain pipes, as well as the limited stormwater draining to CB-44 were evaluated to assess the potential for an unacceptable contribution from Willbridge Yard. Stormwater concentrations draining through the non-BNSF storm drain pipes are similar upstream and downstream of Willbridge Yard, with slightly higher PAH and metals concentrations in South Manhole related to slightly higher turbidity in this sample. Sampling results show that concentrations either do not exceed the JSCS SLVs or plot below the steep portion of the DEQ rank order stormwater curves for Portland Harbor (DEQ 2010). Therefore, wet weather stormwater flow through the Willbridge Yard does not present unacceptable risk to river-related receptors.

OVERVIEW OF THE STORMWATER PATHWAY AT WILLBRIDGE YARD

As discussed in the section above regarding the storm drain layout, nearly all stormwater on Willbridge Yard infiltrates. Two potential pathways have been assessed by the stormwater source control evaluation for protection of the Willamette River:

- Stormwater drainage from a portion of the 0.1 acre area including the Yard office roof and surrounding driveways and walkways to catch basin CB-44
- Infiltration of groundwater into the non-BNSF storm drain pipes which pass beneath Willbridge Yard.

Work completed for the XPA/SCE and the XPA/SCE addendums demonstrate that these pathways are incomplete or insignificant.

Catch Basin CB-44 Drainage

As discussed in the “Background” section of this addendum and described in the XPA/SCE, the only stormwater collection point on the Willbridge Yard is catch basin CB-44, located by the Yard office. Catch basin CB-44 drains approximately 0.1 acre from the roof of the Yard Office and the portion of stormwater that does not infiltrate to the gravel and partially paved area used for driveways and parking surrounding CB-44. Catch basin CB-44 connects to the Phillips 66 storm drain system approximately 6 ft to the south of the catch basin. The Phillips 66 storm drain system then discharges to the non-BNSF storm drain manhole MH-11 (see Figure 2) and ultimately discharges to the Willamette River via

the City's Outfall 19 Conveyance Line and City Outfall 19. Drainage from CB-44 has been evaluated including sampling and analysis of both storm drain solids and stormwater puddled in the catch basin.

CB-44 was initially thought to be a sump containing silty sand and gravel with no outlet. BNSF further evaluated CB-44 during the XPA/SCE, and in February 2010, removed approximately 0.25 cubic yard of gravel and silty sand with a vactor truck. A lateral drain was found exiting the south side of the catch basin at approximately 3 ft below ground surface. The lateral was clogged with sand and gravel that could not be cleared during cleaning operations. The granular material clogging the lateral prevents solids from exiting the catch basin, but allows some stormwater to pass to the Phillips 66 storm drainage system. Silty sand and gravel have re-accumulated in catch basin CB-44 since 2010 and are now present at approximately 3 ft below ground surface, at the invert of the clogged pipe.

Storm drain solids were sampled and analyzed in November 2009, prior to the cleanout of catch basin CB-44. Analytical results for this sample (CB-44) are included in Attachment F (Table 5-1 of the XPA/SCE report). Diesel-range TPH was not detected in CB-44. As is common for catch basin solids draining parking lots and roadways, motor oil-range TPH and PAH were detected (USEPA 1999). Motor oil-range TPH was detected at a concentration of 230 mg/kg, below DEQ risk based concentrations (DEQ 2012). Three PAHs exceeded the JSCS SLV: benzo[ghi]perylene, indeno[1,2,3-cd]pyrene, and pyrene. Concentrations were all within an order of magnitude of the JSCS SLV. For metals, only lead exceeded the JSCS SLV and the detected value was within an order of magnitude above the JSCS SLV. *DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2010) states that industrial stormwater and catch basin sediments commonly include several constituents at concentrations that exceed SLVs by one or more orders of magnitude, but that doesn't necessarily mean the stormwater discharges from the site cause or contribute to unacceptable risk to human health or the environment.

Catch basin CB-44 was evaluated for dry weather flow in August 2012 and September 2014, and wet weather stormwater flow in March 2015; no dry weather flow or puddled stormwater was found associated with catch basin CB-44 and, therefore, dry weather sampling was not conducted. During the March 16, 2015 stormwater sampling event, water was not actively flowing into or out of CB-44, but was found to be puddled on the granular material in the catch basin. This puddled water was sampled; samples were turbid and both total and filtered samples were analyzed. As discussed in the March 2015 results discussion above and shown on Table 2, results from the puddled water are either below JSCS SLVs or plot below the steep portion of the DEQ rank order stormwater charts. With few exceptions, concentrations in the filtered sample were below detection or estimated below reporting limits.

Granular material in the outlet from CB-44 prevents solids from exiting the catch basin. Stormwater accumulates in the catch basin and passes through the clogged lateral, then through the Phillips 66 system to MH-11. Review of the drainage basin, catch basin condition and analysis of stormwater solids and stormwater show that the limited volume of stormwater that enters and leaves catch basin CB-44 does not adversely affect receptors in the Willamette River.

Potential Groundwater Infiltration into the non-BNSF Stormwater Pipes

The non-BNSF storm drain pipes drain stormwater from the hills of Forest Park south of the Yard, portions of Highway 30, and industrial and commercial facilities along the west side of Highway 30. The stormwater passes beneath the Willbridge Yard in three drain pipes. The potential for groundwater to infiltrate into the non-BNSF stormwater storm drain pipes and adversely affect the Willamette River has been assessed using the following lines of evidence:

- Evaluating whether groundwater beneath Willbridge Yard is contaminated as a part of sampling described in the XPA/SCE and Addendum 2 (Integral 2014a)
- Evaluating groundwater levels in relation to storm drain elevations as described in Addendum 1 (Integral 2012)
- Observing dry weather flows as described in Addendum 1 (Integral 2012) and Addendum 3 (Integral 2014c)
- Sampling dry weather flow as described in Addendum 3 (Integral 2014c)
- Sampling wet weather stormwater flow as described in this document, Addendum 4.

The potential for groundwater impacts at Willbridge Yard was evaluated in the XPA/SCE through soil sampling, both at shallow depths and at the water table in the three areas with the potential for releases (e.g., adjacent to the two former 300-gallon diesel fuel and switch oil aboveground storage tanks and adjacent to the 10- to 15-gallon spill in 1995 from a refrigerator boxcar). Additional borings were installed and sampled in other portions of the Yard away from these potential sources showed that releases were not present. Petroleum impacts that would suggest groundwater contamination were not found in shallow soil and petroleum impacts were also not detected in soil at the water table. These lines of evidence indicate that groundwater beneath Willbridge Yard is not contaminated. The Yard has only been used for switching (assembling trains) with limited use of petroleum. Sampling near potential source areas, as well as other locations on the Yard, shows no indication that groundwater is impacted. Therefore, any groundwater infiltrating into the non-BNSF storm drain pipes would not adversely impact stormwater.

The question of whether groundwater could be infiltrating into the storm drain pipes was investigated in the first addendum to the XPA/SCE report, dated December 26, 2012 (Integral 2012). The comparison of the estimated groundwater elevations at Willbridge Yard and nearby properties and non-BNSF storm drain pipe elevations showed that portions of the non-BNSF drain pipes may be below the water table, at least during the wet season. Downstream locations on the non-BNSF drain pipes are more likely to be in or below the water table year round (e.g., pipes entering and exiting the South Manhole).

The potential for groundwater infiltration into the storm drain pipes was evaluated through dry weather site observations described in Addendum 1, and dry weather observations and sampling described in Addendum 3. The consistent volume of flow observed in manholes upstream of Willbridge Yard (MH HWY 30-1 and MH HWY 30-2) and at the downstream manholes (South Manhole and MH SE) shows that flows were originating from offsite and that the storm drain piping was sound and not leaking under Willbridge Yard. These observations also suggest that during dry weather, groundwater is not infiltrating the storm drain piping. Analytical results from the dry weather sampling (Table 3) demonstrate comparable or higher concentrations in upstream MH-HWY30-1 and upstream MH-11 in comparison to the downstream South Manhole.

The potential for groundwater infiltration during the wet season to affect stormwater quality was evaluated through wet weather sampling as part of the XPA/SCE in November 2009 (Attachment F, Table 5-2 from the XPA/SCE report) and November 2010, and in March 2015 as described in this addendum. The XPA/SCE testing of upgradient and downgradient manholes on the non-BNSF storm drain pipes that pass underneath and through the Yard (including the limited stormwater from the Yard that drains into the non-BNSF storm drain pipes) did not show any chemical concentration increases between the upgradient and downgradient sample locations in the Yard. Therefore, Willbridge Yard is not adversely affecting stormwater in these storm drain lines. The conclusion of the March 2015 sampling provided in this report reinforces that conclusion. Given variations in sample turbidity, the March 2015 sampling event showed essentially the same results at upstream and downstream locations. Water quality was below JSCS SLVs or on the flat portion of the DEQ rank order stormwater curves (below the knee) and does not present unacceptable risk to receptors in the Willamette River.

DEQ has questioned the potential for undocumented stormwater connections to the non-BNSF storm drain pipes. BNSF has no knowledge of any undocumented connections, no maps showing undocumented connections, and does not expect any exist. The switching yard was built on sandy dredge fill, with a layer of ballast placed at the surface. This well-draining, flat lying area would not necessitate connections to storm drains at the time of

Yard construction.⁷ Later, undocumented subsurface connections are unlikely as rail would need to be removed for connections to occur, and disruption of Yard service is undesirable. In recent years, after approximately 70 years of Yard operation, the accumulation of fines in the ballast has inhibited infiltration in the northern portion of the Yard. In this limited area, BNSF has installed surface drains under the rails and between the ties to move stormwater to an appropriate area for infiltration as shown on Figure 1. Undocumented subsurface connections were not considered an option because of the need to maintain trackage and the need for permitting with such a connection. The stormwater was instead managed by rerouting to an area for infiltration, a preferred approach in the City Stormwater Manual (City of Portland 2014).

The contribution of undocumented connections, if any existed, would be captured in the November 2009, November 2010, and March 2015 stormwater sampling events. None of these events showed significant downstream increases in stormwater quality or concentrations that would be of concern with respect to JSCS SLVs and DEQ rank order stormwater curves. Therefore, undocumented connections, even if they existed, would not adversely affect receptors in the Willamette River.

SUMMARY AND NEXT STEPS

Sampling and site evaluations at Willbridge Yard show the Yard's contribution to constituent concentrations in the storm drain pipes is insignificant based on the following:

- XPA/SCE sampling results confirm the absence of contaminants in the areas that were potential sources; sampling results indicate that rail switching at Willbridge Yard have not had an adverse effect on soil, groundwater, or stormwater.
- Dry weather flow observations in August 2012 found limited flow in the non-BNSF storm drain pipes at Willbridge Yard, with similar volumes up- and downgradient. Observations during the September 2014 dry weather sampling found no flow from drain pipes crossing Willbridge Yard and generally consistent flow rates in manholes located on the downstream side of Willbridge Yard. Therefore, groundwater beneath Willbridge Yard does not contribute flow to the non-BNSF storm drain pipes during the dry weather. Sampling in November 2009, November

⁷ The City's comments (June 17, 2014) on the DEQ draft Source Control Decision suggested "that industrial track systems often are designed with underdrains to ensure the long-term stability of tracks and ballast." In support, the City referenced drainage standards in an Australian Rail Guidance (Cantrell Rail Services 2001) that thanked BNSF for its input in the acknowledgments to the guidance. This document focuses on necessary drainage on embankments and steep slopes to protect rail transport. BNSF's experience in these areas and its willingness to support the Australian Railroad does not imply that BNSF would install undocumented connections to storm drains on flat, well-drained soil. The site specific information and data from BNSF's investigations addresses the City's concern.

2010, and March 2015 indicates that constituent concentrations at upgradient locations are similar to or lower than concentrations at downgradient locations. Therefore, if groundwater infiltrates into the non-BNSF storm drain pipes during dry weather periods, its contribution to chemical concentrations in stormwater is insignificant at most. In addition, concentrations were either below the JSCS SLV, or on the flat portion (below the knee) of the DEQ rank order stormwater curves. Therefore, any infiltration into the non-BNSF storm drain pipes is not adversely affecting stormwater quality or receptors in the Willamette River.

- Wet weather sampling in November 2009, November 2010, and March 2015 showed similar constituent concentrations between upgradient and downgradient sample locations. In addition, concentrations were either below the JSCS SLV or below the steep portion of the DEQ rank order stormwater curves. Therefore, if any groundwater is infiltrating into the storm drain pipes, it is not adversely affecting stormwater quality. In addition, even if undocumented connections existed at the Yard, they would not adversely affect stormwater quality.
- Sampling at catch basin CB-44 shows that stormwater concentrations, and stormwater solids concentrations either are less than the JSCS SLV, or are below the steep portion of the curve on the DEQ rank order stormwater curves. Therefore, the limited volume of stormwater entering the drain pipes (from part of a 0.1 acre non-operational area in a 533-acre drainage basin) is not adversely affecting stormwater or receptors in the Willamette River.
- The City has concluded that discharges from OF-19 are unlikely to represent a significant source of contaminants to the river (BES 2013). Because the limited stormwater from CB-44 is such a small fraction of the overall flow from OF-19, it follows that Willbridge Yard is not a source either.

Based on the results of the dry weather and stormwater sampling events performed in 2014 and 2015, respectively, and previous sampling events and evaluations performed as part of the XPA/SCE, Willbridge Yard flow and constituent concentration contributions to the storm drain pipes beneath the Willbridge Yard are insignificant. This report completes the tasks required of BNSF by DEQ so that DEQ can complete its evaluation of the Willbridge Yard.

BNSF requests that DEQ issue a final SCD indicating that the Willbridge Yard stormwater pathway, including groundwater flow into the storm drain pipes, is not a current or reasonably likely future source of contaminants to the Willamette River requiring further source control investigation or source control measures.

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ATTACHMENTS

Figures

Figure 1. Willbridge Facility, Vicinity Features, and Sampling Locations

Figure 2. Stormwater Sampling Locations and Results, BNSF Willbridge Yard (2009, 2014, and 2015)

Figure 3. Hydrograph—Wet Weather Sampling Event, BNSF Willbridge Yard

Tables

Table 1. March 2015 Stormwater Storm Drain Sampling Locations

Table 2. March 2015 Stormwater Storm Drain Sampling Analytical Results

Table 3. Storm Drain Sampling Analytical Results (2009–2015)

Attachment A. Correspondence

Attachment B. Photographs

Attachment C. Laboratory Analytical Data Package

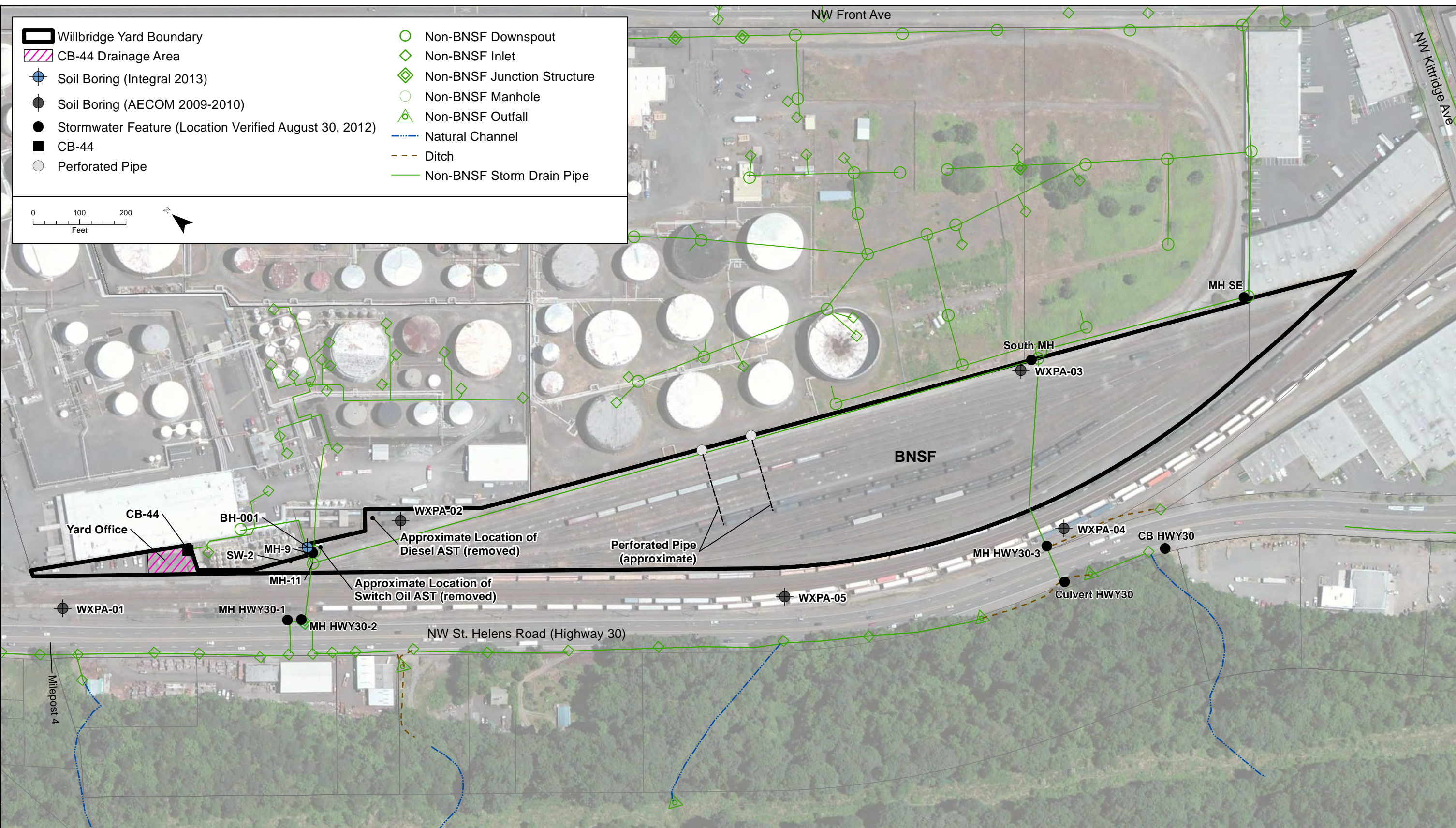
Attachment D. Data Validation

Attachment E. DEQ Rank Order Stormwater Charts

Attachment F. Tables 5-1 and 5-2 from XPA/SCE Report

FIGURES

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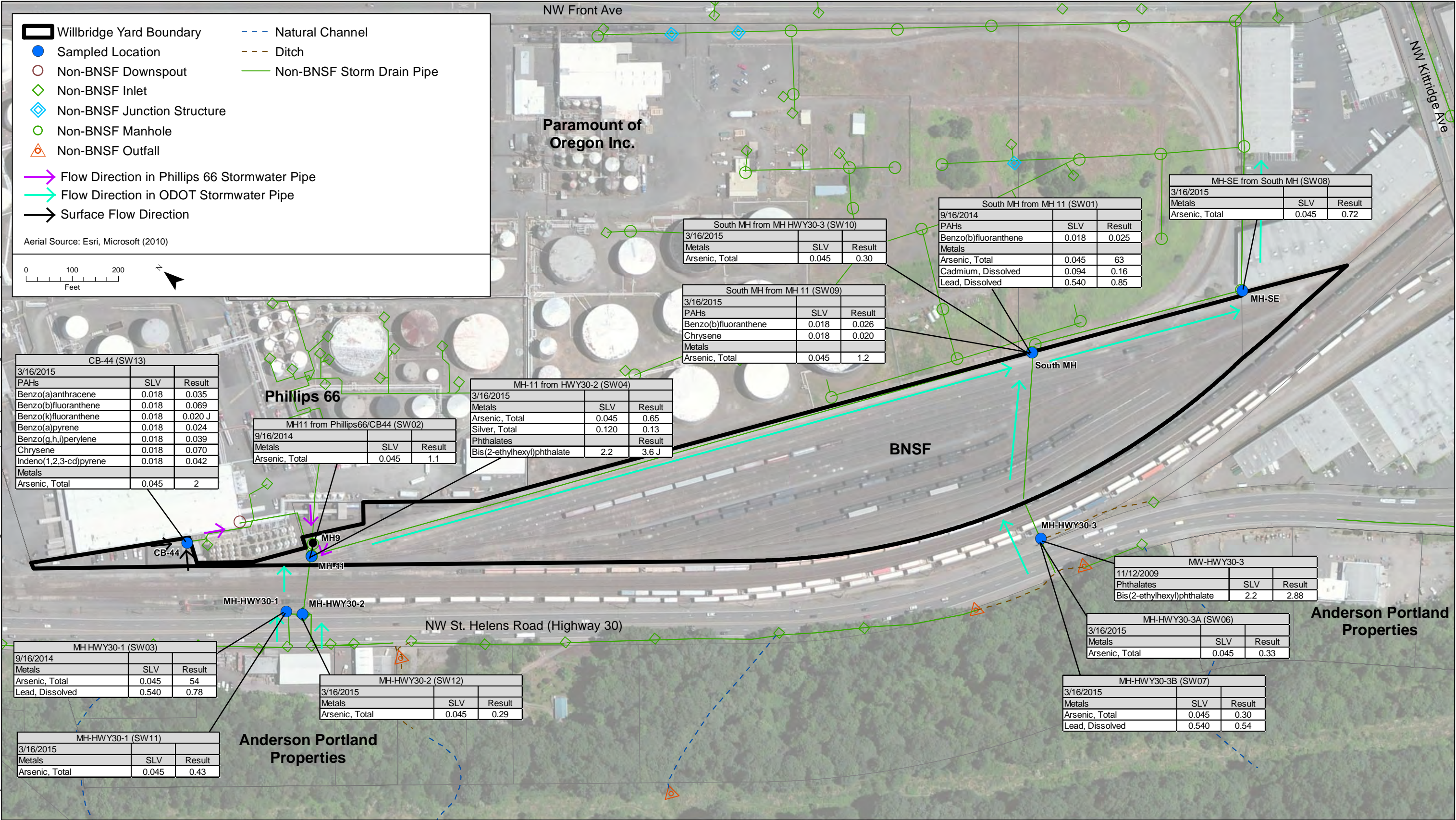


NOTES:
GPS Points for verified stormwater features collected on 8/30/2012 using Trimble GeoXH.
AST = above-ground storage tank
CB = catch basin
HWY30 = Highway 30
MH = manhole

FEATURE SOURCES:
BNSF and Metro Tax Lots (2013)
CB-44 Drainage Area: AECOM (2011)
Pipelines and stormwater features from AECOM (2011)
Aerial Source: ESRI, Microsoft (2010); Inset Aerial: Metro (2007)

Figure 1.
Willbridge Facility, Vicinity Features, and Sampling Locations

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Notes:
1. All results in µg/L
2. Only constituents at or above respective JSCS SLVs are shown

MH = Manhole
HWY30 = Highway 30
J = result estimated
SLV = screening level value
JSCS = joint source control strategy

Figure 2.
Stormwater Sampling Locations and Results
BNSF Willbridge Yard (2009, 2014, and 2015)

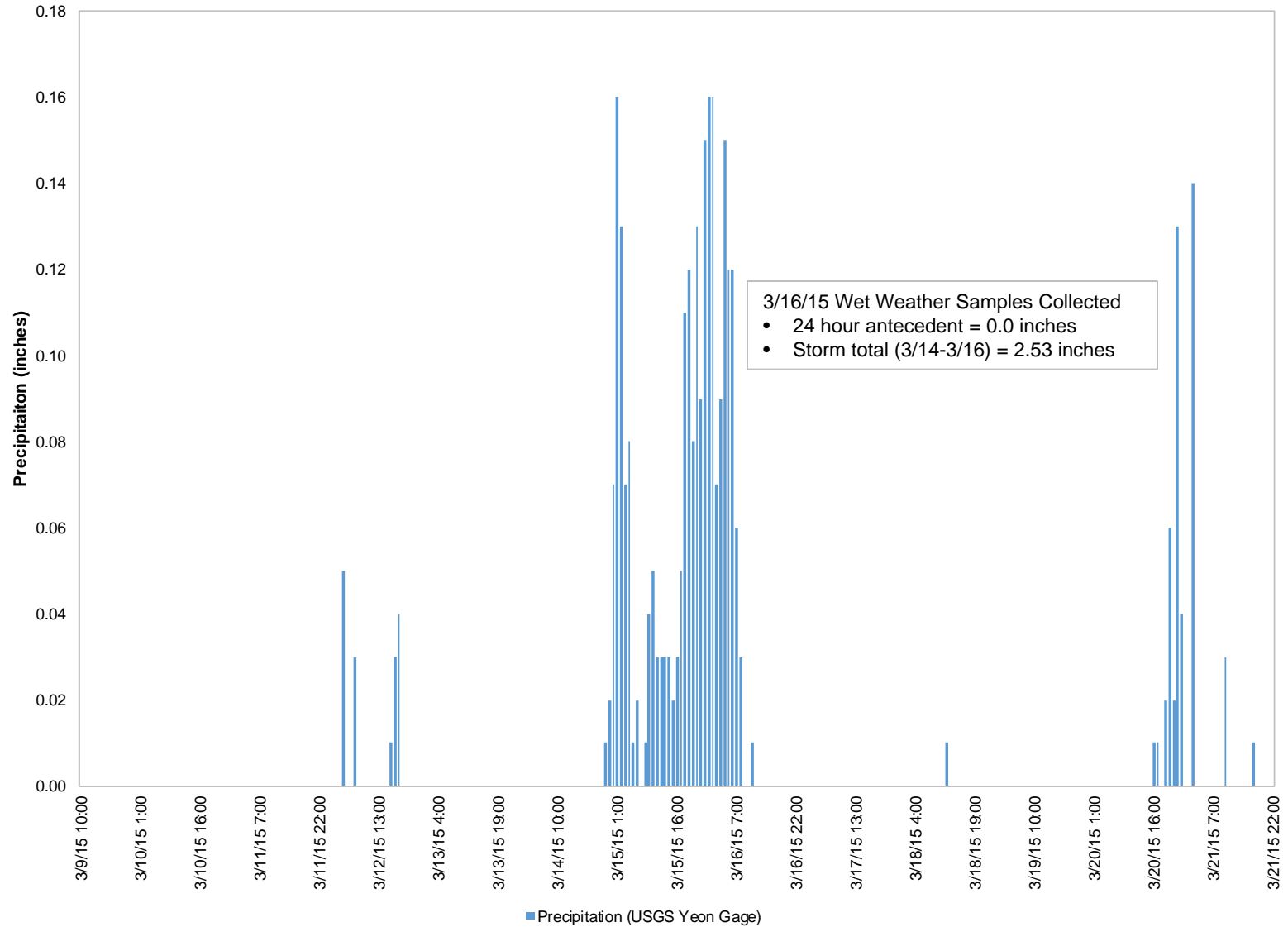


Figure 3.
Hydrograph – Wet Weather Sampling Event
BNSF Willbridge Yard

TABLES

Table 1. March 2015 Stormwater Storm Drain Sampling Locations

Manhole Number	Sample(s) Collected	Observations	Flow Rate
MH-HWY30-1	SW11—Influent pipe to MH-HWY30 from upstream	Flow was present in the influent pipe to MH-HWY30-1 originating from Highway 30 (Photograph 7).	Approximately 1.3 ft/s
MH-HWY30-2	SW12—Influent pipe to MH-HWY30-2 from upstream	Flow was present in the influent pipe to MH-HWY30-2 originating from Highway 30 (Photograph 6). Some sediment observed in sample.	Approximately 2.5 ft/s
MH-HWY30-3	SW06—Influent pipe to MH-HWY30-3 from upstream west SW07—Influent pipe to MH-HWY30-3 from upstream east	Flow was observed in the two influent pipes to MH-HWY30-3 originating from Highway 30 (Photograph 5). Some sediment observed in sample.	Approximately 2.5 ft/s
CB-44	SW13—1 to 2 inches of standing water on the gravel in CB-44.	Catch basin CB-44 receives roof drainage and drainage from a small area near the yard office totaling 0.1 acre. Evidence of drainage was observed in the yard office area during the wet weather sampling event. Standing water (1 to 2 inches) was present on the gravel in CB-44 (Photograph 8). Gravel was present in catch basin at approximately 3 feet below grade, at the invert of the clogged drain pipe. Some sediment observed in sample.	No flow
MH-11	SW04—Influent pipe to MH-11 from MH-HWY30-1/MH-HWY30-2	Flow was observed in the pipe originating from MH-HWY30-1/MH-HWY30-2 (Photograph 4). No flow was observed in the inlets from MH-9 and Phillips 66 and BNSF catch basin CB-44.	Approximately 2 ft/s
MH-9	No sample collected	No flow was observed in the inlet from Phillips 66, and only a small amount of water was observed in the bottom of the manhole (insufficient for sampling; Photograph 3).	No flow
South MH	SW09—Influent to South MH from MH-11 SW10—Influent to South MH from MH-HWY30-3	Flow was present in the influent pipes to South MH originating from MH-HWY30-3 and MH-11 (Photograph 2). Some sediment observed in sample SW-10 (influent to South MH from MH-HWY30-3).	Approximately 3 ft/s (influent from MH-HWY30-3); Approximately 5 ft/s (influent from MH-11)
MH SE	SW08—Influent to MH SE from South MH	Flow was present in the influent pipe originating from South MH (Photograph 1).	Approximately 3.5 ft/s

Table 2. March 2015 Stormwater Storm Drain Sampling Analytical Results

JSCS Screening Levels ^a			Sample Results - Wet Weather Sampling (3/16/15)										
			MH-11 from HWY30-2 (SW04) downstream	MH-11 from HWY30-2, Duplicate (SW05) downstream	MH-HWY30-3A (SW06) upstream	MH-HWY30-3B (SW07) upstream	MH-SE from South MH (SW08) downstream	South MH from MH11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH-HWY30-1 (SW11) upstream	MH-HWY30-2 (SW12) upstream	CB-44 (SW13) downstream	CB-44 (SW13) downstream
			Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Filtered Result
Analyte	Value (µg/L)	Note											
PAHs^b (8270D SIM)													
Naphthalene	0.2	MCL	0.016	0.022	0.0041 U	0.0040 U	0.021	0.015	0.0038 U	0.0040 U	0.025	0.011	0.0097 J
1-Methylnaphthalene	0.2	MCL	0.0038 J	0.0034 J	0.0034 U	0.0033 J	0.0034 U	0.0049 J	0.0031 U	0.0033 U	0.0037 U	0.0034 U	0.0044 J
2-Methylnaphthalene	0.2	MCL	0.0033 U	0.0033 U	0.0034 U	0.0033 U	0.0034 U	0.0032 U	0.0031 U	0.0033 U	0.012 J	0.0038 J	0.0033 U
Acenaphthylene	0.2	MCL	0.0033 U	0.0033 U	0.0034 U	0.0033 U	0.0034 U	0.0032 U	0.0031 U	0.0033 U	0.0051 J	0.0034 U	0.0033 U
Acenaphthene	0.2	MCL	0.0037 J	0.0046 J	0.0034 U	0.0033 U	0.0034 U	0.0032 U	0.0031 U	0.0033 U	0.0037 J	0.0034 U	0.11
Fluorene	0.2	MCL	0.0033 U	0.0042 J	0.0034 U	0.0033 U	0.0034 U	0.0032 U	0.0031 U	0.0033 U	0.0037 U	0.0034 U	0.0033 U
Phenanthrene	0.2	MCL	0.0067 U	0.01 U	0.0042 U	0.0061 U	0.0056 U	0.0077 U	0.0073 U	0.0058 U	0.0099 U	0.045	0.0033 U
Anthracene	0.2	MCL	0.01 U	0.014	0.0034 U	0.0033 U	0.015	0.026	0.0038 U	0.0033 U	0.0037 U	0.027	0.015
Fluoranthene	0.2	MCL	0.0099 J	0.013	0.0034 U	0.0071 J	0.012	0.016	0.0052 J	0.0062 J	0.005 J	0.11	0.0035 J
Pyrene	0.2	MCL	0.011	0.013	0.0034 U	0.0065 J	0.014	0.018	0.0048 J	0.0067 J	0.0047 J	0.1	0.0033 U
Benzo(a)anthracene	0.018	EPA's 2004 NRQWC (organism only)	0.0062 J	0.0067 J	0.0034 U	0.0041 J	0.0074 J	0.011	0.0031 U	0.0033 U	0.0037 U	0.035	0.0033 U
Chrysene	0.018	EPA's 2004 NRQWC (organism only)	0.0095 J	0.011	0.0034 U	0.0053 J	0.013	0.02	0.0036 J	0.0039 J	0.0037 U	0.07	0.0033 U
Benzo(b)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	0.014	0.015	0.0034 U	0.0061 J	0.016	0.026	0.004 J	0.0036 J	0.0037 U	0.069	0.0033 U
Benzo(k)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	0.0048 J	0.0053 J	0.0034 UJ	0.0033 UJ	0.0049 J	0.0084 J	0.0031 UJ	0.0033 UJ	0.0037 UJ	0.02 J	0.0033 U
Benzo(a)pyrene	0.018	EPA's 2004 NRQWC (organism only)	0.0033 U	0.0041 J	0.0034 U	0.0033 U	0.0039 J	0.0065 J	0.0031 U	0.0033 U	0.0037 U	0.024	0.0033 U
Indeno(1,2,3-cd)pyrene	0.018	EPA's 2004 NRQWC (organism only)	0.0081 J	0.0085 J	0.0034 U	0.0041 J	0.0076 J	0.013	0.0031 U	0.0033 U	0.0037 U	0.042	0.0033 U
Dibenz(a,h)anthracene	0.018	EPA's 2004 NRQWC (organism only)	0.0033 U	0.0033 U	0.0034 U	0.0033 U	0.0034 U	0.0032 U	0.0031 U	0.0033 U	0.0037 U	0.0081 J	0.0033 U
Benzo(g,h,i)perylene	0.018	EPA's 2004 NRQWC (organism only)	0.0079 J	0.0074 J	0.0034 U	0.004 J	0.0063 J	0.011	0.0031 U	0.0033 U	0.0037 U	0.039	0.0033 U
Total PAHs	--	--	0.0949	0.1322	0	0.0405	0.1211	0.1758	0.0176	0.0204	0.0555	0.6039	0.1426
Metals^c (6020)													
Arsenic, Total	0.045	Tap Water PRG	0.65	0.57	0.33	0.3	0.72	1.2	0.3	0.43	0.29	2	NA
Arsenic, Dissolved (field filtered)	--	--	0.39	0.48	0.23	0.25	0.59	0.98	0.21	0.16	0.15	0.27	NA
Barium, Total	NA	NA	29	25	26	28	26	26	27	27	24	39	NA
Barium, Dissolved (field filtered)	NA	NA	16	19	22	22	20	20	22	17	16	6.5	NA
Cadmium, Total	--	--	0.089 J	0.05 U	0.053 J	0.05 U	0.05 U	0.05 U	0.05 U	0.07 J	0.05 U	0.19	NA

Table 2. March 2015 Stormwater Storm Drain Sampling Analytical Results

			Sample Results - Wet Weather Sampling (3/16/15)										
JSCS Screening Levels ^a			MH-11 from HWY30-2 (SW04) downstream	MH-11 from HWY30-2, Duplicate (SW05) downstream	MH-HWY30-3A (SW06) upstream	MH-HWY30-3B (SW07) upstream	MH-SE from South MH (SW08) downstream	South MH from MH11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH-HWY30-1 (SW11) upstream	MH-HWY30-2 (SW12) upstream	CB-44 (SW13) downstream	CB-44 (SW13) downstream
Analyte	Value (µg/L)	Note	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Filtered Result
Cadmium, Dissolved (field filtered)	0.094	EPA's 2004 NRQWC (organism only)	0.071 J	0.1	0.05 U	0.05 U	0.065 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Chromium, Total	100	MCL	1.4	1.5	1.3	1.7	1.4	1.5	1.3	1.9	1.4	4.9	NA
Chromium, Dissolved (field filtered)	NA	NA	0.34 J	0.66	0.63	0.66	0.61	0.64	0.63	0.25 J	0.36 J	0.2 U	NA
Lead, Total	--	--	1.3	1.2	1.1	1.2	1.2	1.3	1	0.94	0.72	27	NA
Lead, Dissolved (field filtered)	0.54	EPA's 2004 NRQWC (organism only)	0.2	0.53	0.43	0.54	0.38	0.41	0.39	0.11	0.093 J	0.24	NA
Selenium, Total	5	--	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	NA
Selenium, Dissolved (field filtered)	--	EPA's 2004 NRQWC (organism only)	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	NA
Silver, Total	0.12	DEQ's 2004 AWQC (chronic)	0.13	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.09 J	0.05 U	0.05 U	NA
Silver, Dissolved (field filtered)	--	--	0.099 J	0.15	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Mercury, Total (7470A)	--	--	0.041 U	0.041 U	0.041 U	0.041 U	0.056 J	0.041 U	0.041 U	0.041 U	0.041 U	0.19 J	NA
Mercury, Dissolved (7470A, field filtered)	0.77	EPA's 2004 NRQWC (chronic)	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	NA
TPH													
Gasoline Range (NWTPH-GX)	NA	NA	27 U	27 U	27 U	27 U	27 U	27 U	27 U	27 U	27 U	NA	NA
Diesel Range (#2 C10-C24) (NWTPH-DX)	NA	NA	65 UJ	150 J	95 UJ	91 UJ	140 UJ	100 UJ	82 UJ	87 UJ	110 U	NA	NA
Motor Oil (>C24-C36) (NWTPH-DX)	NA	NA	30 U	46 J	32 U	31 U	34 U	37 U	33 U	30 U	30 U	NA	NA
PCBs ^d (8082A)													
Aroclor® 1016	0.96	Tap Water PRG	0.0053 U	0.0047 U	0.0053 U	0.0051 U	0.0057 U	0.0049 U	0.0047 U	0.0053 U	0.0054 U	NA	NA
Aroclor® 1221	0.034	Tap Water PRG	0.0073 U	0.0064 U	0.0073 U	0.0071 U	0.0079 U	0.0068 U	0.0065 U	0.0072 U	0.0075 U	NA	NA
Aroclor® 1232	0.034	Tap Water PRG	0.0048 U	0.0043 U	0.0048 U	0.0047 U	0.0052 U	0.0045 U	0.0043 U	0.0048 U	0.0049 U	NA	NA
Aroclor® 1242	0.034	Tap Water PRG	0.0048 U	0.0043 U	0.0048 U	0.0047 U	0.0052 U	0.0045 U	0.0043 U	0.0048 U	0.0049 U	NA	NA
Aroclor® 1248	0.034	Tap Water PRG	0.0083 U	0.0074 U	0.0084 U	0.0081 U	0.0090 U	0.0077 U	0.0074 U	0.0083 U	0.0085 U	NA	NA
Aroclor® 1254	0.033	Oak Ridge National Laboratory's (Tier II SCV)	0.0052 U	0.0046 U	0.0052 U	0.0050 U	0.0056 U	0.0048 U	0.0046 U	0.0051 U	0.0053 U	NA	NA
Aroclor® 1260	0.034	Tap Water PRG	0.0046 U	0.0040 U	0.0046 U	0.0044 U	0.0050 U	0.0042 U	0.0041 U	0.0046 U	0.0047 U	NA	NA
Total PCBs	0.000064	Portland Harbor specific fish consumption rate	0.0083 U	0.0074 U	0.0084 U	0.0081 U	0.0090 U	0.0077 U	0.0074 U	0.0083 U	0.0085 U	NA	NA

Table 2. March 2015 Stormwater Storm Drain Sampling Analytical Results

			Sample Results - Wet Weather Sampling (3/16/15)										
			MH-11 from HWY30-2 (SW04) downstream	MH-11 from HWY30-2, Duplicate (SW05) downstream	MH-HWY30-3A (SW06) upstream	MH-HWY30-3B (SW07) upstream	MH-SE from South MH (SW08) downstream	South MH from MH11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH-HWY30-1 (SW11) upstream	MH-HWY30-2 (SW12) upstream	CB-44 (SW13) downstream	CB-44 (SW13) downstream
			JSCS Screening Levels ^a										
Analyte	Value (µg/L)	Note	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Filtered Result
Phthalates (8270D)													
Butylbenzylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.29 U	0.38	0.45	0.13 U	0.16 U	0.18 U	0.25 U	0.32 U	0.24 U	NA	NA
Bis(2-ethylhexyl)phthalate	2.2	EPA's 2004 NRQWC (organism only)	3.6 J	0.65 U	0.67 U	0.66 U	0.66 U	0.63 U	0.62 U	1.2 J	0.73 U	NA	NA
Diethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.11 J	0.055 U	0.057 U	0.056 U	0.056 U	0.054 U	0.052 U	0.055 U	0.062 U	NA	NA
Dimethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.056 U	0.055 U	0.057 U	0.056 U	0.056 U	0.054 U	0.052 U	0.055 U	0.062 U	NA	NA
Di-n-butylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.072 U	0.093 U	0.074 U	0.072 U	0.073 U	0.070 U	0.068 U	0.12 U	0.092 U	NA	NA
Di-n-octylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.097 U	0.094 U	0.10 U	0.11 U	NA	NA

Notes:

Bold indicates concentrations above the JSCS screening level value

-- = no highlighted value provided in DEQ JSCS Table 3-1 (7/16/2007 Revision) Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water

AWQC = ambient water quality criteria	NRQWC = National Recommended Water Quality Criteria
DEQ = Oregon Department of Environmental Quality	PAH = polycyclic aromatic hydrocarbon
EPA = U.S. Environmental Protection Agency	PCB = polychlorinated biphenyl
JSCS = Joint Source Control Strategy	PRG = preliminary remediation goal
MCL = maximum contaminant level	SCV = secondary chronic value
NA = not applicable	TPH = total petroleum hydrocarbon

Data Qualifiers

U = The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

UJ = Estimated and Not Detected. The analyte is considered to be not detected at the reported value, and the associated numerical value is an estimated value.

J = The associated numerical value is an estimated quantity.

^aTable 3-1 (7/16/2007 Revision) Screening Level Values for Soil/Stormwater, Sediment, Stormwater, Groundwater, and Surface Water

^bMethod reporting limit and method detection limit for TestAmerica Portland 8270D SIM

^cMethod reporting limit and method detection limit for TestAmerica Irvine 6020

^dMethod reporting limit and method detection limit low level 1 L to 1 mL final volume

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-HWY30-2 (SW-1) upstream	MH-HWY30-2 (SW-1a) upstream	MH-11 (SW-2) downstream	MH-HWY30-3 (SW-3) upstream	South MH (SW-4) downstream	South MH from MH 11 (SW01) downstream	South MH from MH 11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH- HWY30-3A (SW06) upstream	MH-HWY30- 3B (SW07) upstream
	Value (µg/L)		11/12/2009	11/18/2010	11/18/2010	11/12/2009	11/12/2009	9/16/2014	3/16/2015	3/16/2015	3/16/2015	3/16/2015
	Note	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PAHs^b (8270D SIM)												
Naphthalene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.015	0.0038 U	0.0041 U	0.0040 U
1-Methylnaphthalene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0049 J	0.0031 U	0.0034 U	0.0033 J
2-Methylnaphthalene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0032 U	0.0031 U	0.0034 U	0.0033 U
Acenaphthylene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0032 U	0.0031 U	0.0034 U	0.0033 U
Acenaphthene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0032 U	0.0031 U	0.0034 U	0.0033 U
Fluorene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0032 U	0.0031 U	0.0034 U	0.0033 U
Phenanthrene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.0077 U	0.0073 U	0.0042 U	0.0061 U
Anthracene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.026	0.0038 U	0.0034 U	0.0033 U
Fluoranthene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.016	0.0052 J	0.0034 U	0.0071 J
Pyrene	0.2	MCL	NA	NA	NA	NA	NA	0.069 U	0.018	0.0048 J	0.0034 U	0.0065 J
Benzo(a)anthracene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.011	0.011	0.0031 U	0.0034 U	0.0041 J
Chrysene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.013	0.02	0.0036 J	0.0034 U	0.0053 J
Benzo(b)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.025	0.026	0.004 J	0.0034 U	0.0061 J
Benzo(k)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.0078	0.0084 J	0.0031 UJ	0.0034 UJ	0.0033 UJ
Benzo(a)pyrene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.016	0.0065 J	0.0031 U	0.0034 U	0.0033 U
Indeno(1,2,3-cd)pyrene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.015	0.013	0.0031 U	0.0034 U	0.0041 J
Dibenz(a,h)anthracene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.0069 U	0.0032 U	0.0031 U	0.0034 U	0.0033 U
Benzo(g,h,i)perylene	0.018	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.069 U	0.011	0.0031 U	0.0034 U	0.004 J
Total PAHs	--	--	NA	NA	NA	NA	NA	0.0878	0.1758	0.0176	0	0.0405
Metals^c (6020)												
Arsenic, Total	0.045	Tap Water PRG	NA	NA	NA	NA	NA	63	1.2	0.3	0.33	0.3
Arsenic, Dissolved (field filtered)	--	--	NA	NA	NA	NA	NA	11	0.98	0.21	0.23	0.25
Barium, Total	NA	NA	NA	NA	NA	NA	NA	270	26	27	26	28
Barium, Dissolved (field filtered)	NA	NA	NA	NA	NA	NA	NA	29	20	22	22	22
Cadmium, Total	--	--	NA	NA	NA	NA	NA	0.75	0.05 U	0.05 U	0.053 J	0.05 U

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-HWY30-2 (SW-1) upstream	MH-HWY30-2 (SW-1a) upstream	MH-11 (SW-2) downstream	MH-HWY30-3 (SW-3) upstream	South MH (SW-4) downstream	South MH from MH 11 (SW01) downstream	South MH from MH 11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH- HWY30-3A (SW06) upstream	MH-HWY30- 3B (SW07) upstream
	Value (µg/L)		11/12/2009	11/18/2010	11/18/2010	11/12/2009	11/12/2009	9/16/2014	3/16/2015	3/16/2015	3/16/2015	3/16/2015
	Note	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cadmium, Dissolved (field filtered)	0.094	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.16	0.05 U	0.05 U	0.05 U	0.05 U
Chromium, Total	100	MCL	NA	NA	NA	NA	NA	2.1	1.5	1.3	1.3	1.7
Chromium, Dissolved (field filtered)	NA	NA	NA	NA	NA	NA	NA	0.44 J	0.64	0.63	0.63	0.66
Lead, Total	--	--	NA	NA	NA	NA	NA	4.2	1.3	1	1.1	1.2 B
Lead, Dissolved (field filtered)	0.54	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.85	0.41	0.39	0.43	0.54
Selenium, Total	5	--	NA	NA	NA	NA	NA	0.34 J	0.3 U	0.3 U	0.3 U	0.3 U
Selenium, Dissolved (field filtered)	--	EPA's 2004 NRQWC (organism only)	NA	NA	NA	NA	NA	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Silver, Total	0.12	DEQ's 2004 AWQC (chronic)	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Silver, Dissolved (field filtered)	--	--	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Mercury, Total (7470A)	--	--	NA	NA	NA	NA	NA	0.088 U	0.041 U	0.041 U	0.041 U	0.041 U
Mercury, Dissolved (7470A, field filtered)	0.77	EPA's 2004 NRQWC (chronic)	NA	NA	NA	NA	NA	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
TPH												
Gasoline Range (NWTPH-GX)	NA	NA	NA	NA	NA	NA	NA	10 U	27 U	27 U	27 U	27 U
Diesel Range (#2 C10-C24) (NWTPH-DX)	NA	NA	NA	NA	NA	NA	NA	240 J	100 UJ	82 UJ	95 UJ	91 UJ
Motor Oil (>C24-C36) (NWTPH-DX)	NA	NA	NA	NA	NA	NA	NA	270 J	37 U	33 U	32 U	31 U
PCBs^d (8082A)												
Aroclor® 1016	0.96	Tap Water PRG	NA	NA	NA	NA	NA	0.0051 U	0.0049 U	0.0047 U	0.0053 U	0.0051 U
Aroclor® 1221	0.034	Tap Water PRG	0.47 U	0.0971 U	0.0952 U	0.47 U	0.47 U	0.007 U	0.0068 U	0.0065 U	0.0073 U	0.0071 U
Aroclor® 1232	0.034	Tap Water PRG	NA	NA	NA	NA	NA	0.0047 U	0.0045 U	0.0043 U	0.0048 U	0.0047 U
Aroclor® 1242	0.034	Tap Water PRG	0.47 U	0.194 U	0.190 U	0.47 U	0.47 U	0.0047 U	0.0045 U	0.0043 U	0.0048 U	0.0047 U
Aroclor® 1248	0.034	Tap Water PRG	0.47 U	0.0971 U	0.0952 U	0.47 U	0.47 U	0.0081 U	0.0077 U	0.0074 U	0.0084 U	0.0081 U
Aroclor® 1254	0.033	Oak Ridge National Laboratory's (Tier II SCV)	0.47 U	0.0971 U	0.0952 U	0.47 U	0.47 U	0.0050 U	0.0048 U	0.0046 U	0.0052 U	0.0050 U
Aroclor® 1260	0.034	Tap Water PRG	0.47 U	0.0971 U	0.0952 U	0.47 U	0.47 U	0.0044 U	0.0042 U	0.0041 U	0.0046 U	0.0044 U
Total PCBs	0.000064	Portland Harbor specific fish consumption rate	NA	NA	NA	NA	NA	0.0081 U	0.0077 U	0.0074 U	0.0084 U	0.0081 U

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-HWY30-2 (SW-1) upstream	MH-HWY30-2 (SW-1a) upstream	MH-11 (SW-2) downstream	MH-HWY30-3 (SW-3) upstream	South MH (SW-4) downstream	South MH from MH 11 (SW01) downstream	South MH from MH 11 (SW09) downstream	South MH from HWY30-3 (SW10) downstream	MH- HWY30-3A (SW06) upstream	MH-HWY30- 3B (SW07) upstream
	Value (µg/L)		11/12/2009	11/18/2010	11/18/2010	11/12/2009	11/12/2009	9/16/2014	3/16/2015	3/16/2015	3/16/2015	3/16/2015
	Note	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Phthalates (8270D)												
Butylbenzylphthalate	3.0	DEQ's 2004 AWQC (chronic)	1.89 U	0.952 U	0.952 U	1.89 U	0.943 U	0.17 J	0.18 U	0.25 U	0.45	0.13 U
Bis(2-ethylhexyl)phthalate	2.2	EPA's 2004 NRQWC (organism only)	1.89 U	0.952 U	0.952 U	2.88	0.943 U	2.1 UJ	0.63 U	0.62 U	0.67 U	0.66 U
Diethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	1.89 U	0.952 U	0.952 U	1.89 U	0.943 U	0.064 UJ	0.054 U	0.052 U	0.057 U	0.056 U
Dimethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	1.89 U	0.952 U	0.952 U	1.89 U	0.943 U	0.064 UJ	0.054 U	0.052 U	0.057 U	0.056 U
Di-n-butylphthalate	3.0	DEQ's 2004 AWQC (chronic)	1.89 U	0.952 U	0.952 U	1.89 U	0.943 U	0.083 UJ	0.070 U	0.068 U	0.074 U	0.072 U
Di-n-octylphthalate	3.0	DEQ's 2004 AWQC (chronic)	9.43 U	0.952 U	0.952 U	2.21	0.943 U	0.11 UJ	0.097 U	0.094 U	0.10 U	0.10 U

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-SE from	MH-11 from	MH-11 from	MH-11 from	MH-	MH-	MH-HWY30-	CB-44	Dissolved
			South MH	Phillips66/CB44	HWY30-2	HWY30-2,	HWY30-1	HWY30-1	2 (SW12)	(SW13)	
	(SW08)	(SW02) downstream	(SW04)	Duplicate	(SW03)	(SW11)	upstream	upstream	downstream		
	Value	Note	downstream	downstream	downstream	downstream	upstream	upstream	upstream	downstream	Result
	(µg/L)		3/16/2015	9/16/2014	3/16/2015	3/16/2015	9/16/2014	3/16/2015	3/16/2015	3/16/2015	Result
PAHs ^b (8270D SIM)											
Naphthalene	0.2	MCL	0.021	0.062 U	0.016	0.022	0.057 U	0.0040 U	0.025	0.011	0.0097 J
1-Methylnaphthalene	0.2	MCL	0.0034 U	0.062 U	0.0038 J	0.0034 J	0.057 U	0.0033 U	0.0037 U	0.0034 U	0.0044 J
2-Methylnaphthalene	0.2	MCL	0.0034 U	0.062 U	0.0033 U	0.0033 U	0.057 U	0.0033 U	0.012 J	0.0038 J	0.0033 U
Acenaphthylene	0.2	MCL	0.0034 U	0.062 U	0.0033 U	0.0033 U	0.057 U	0.0033 U	0.0051 J	0.0034 U	0.0033 U
Acenaphthene	0.2	MCL	0.0034 U	0.062 U	0.0037 J	0.0046 J	0.057 U	0.0033 U	0.0037 J	0.0034 U	0.11
Fluorene	0.2	MCL	0.0034 U	0.062 U	0.0033 U	0.0042 J	0.057 U	0.0033 U	0.0037 U	0.0034 U	0.0033 U
Phenanthrene	0.2	MCL	0.0056 U	0.062 U	0.0067 U	0.01 U	0.057 U	0.0058 U	0.0099 U	0.045	0.0033 U
Anthracene	0.2	MCL	0.015	0.062 U	0.01 U	0.014	0.057 U	0.0033 U	0.0037 U	0.027	0.015
Fluoranthene	0.2	MCL	0.012	0.062 U	0.0099 J	0.013	0.057 U	0.0062 J	0.005 J	0.11	0.0035 J
Pyrene	0.2	MCL	0.014	0.062 U	0.011	0.013	0.057 U	0.0067 J	0.0047 J	0.1	0.0033 U
Benzo(a)anthracene	0.018	EPA's 2004 NRQWC (organism only)	0.0074 J	0.0062 U	0.0062 J	0.0067 J	0.0057 U	0.0033 U	0.0037 U	0.035	0.0033 U
Chrysene	0.018	EPA's 2004 NRQWC (organism only)	0.013	0.0062 U	0.0095 J	0.011	0.0057 U	0.0039 J	0.0037 U	0.07	0.0033 U
Benzo(b)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	0.016	0.0062 U	0.014	0.015	0.0069	0.0036 J	0.0037 U	0.069	0.0033 U
Benzo(k)fluoranthene	0.018	EPA's 2004 NRQWC (organism only)	0.0049 J	0.0062 U	0.0048 J	0.0053 J	0.0057 U	0.0033 UJ	0.0037 UJ	0.02 J	0.0033 U
Benzo(a)pyrene	0.018	EPA's 2004 NRQWC (organism only)	0.0039 J	0.0062 U	0.0033 U	0.0041 J	0.0057 U	0.0033 U	0.0037 U	0.024	0.0033 U
Indeno(1,2,3-cd)pyrene	0.018	EPA's 2004 NRQWC (organism only)	0.0076 J	0.0062 U	0.0081 J	0.0085 J	0.0057 U	0.0033 U	0.0037 U	0.042	0.0033 U
Dibenz(a,h)anthracene	0.018	EPA's 2004 NRQWC (organism only)	0.0034 U	0.0062 U	0.0033 U	0.0033 U	0.0057 U	0.0033 U	0.0037 U	0.0081 J	0.0033 U
Benzo(g,h,i)perylene	0.018	EPA's 2004 NRQWC (organism only)	0.0063 J	0.062 U	0.0079 J	0.0074 J	0.057 U	0.0033 U	0.0037 U	0.039	0.0033 U
Total PAHs	--	--	0.1211	0.062 U	0.0949	0.1322	0.0069	0.0204	0.0555	0.6039	0.1426
Metals ^c (6020)											
Arsenic, Total	0.045	Tap Water PRG	0.72	1.1	0.65	0.57	54	0.43	0.29	2	NA
Arsenic, Dissolved (field filtered)	--	--	0.59	0.51	0.39	0.48	10	0.16	0.15	0.27	NA
Barium, Total	NA	NA	26	18	29	25	440	27	24	39	NA
Barium, Dissolved (field filtered)	NA	NA	20	11	16	19	150	17	16	6.5	NA
Cadmium, Total	--	--	0.05 U	0.13	0.089 J	0.05 U	1.6	0.07 J	0.05 U	0.19	NA

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-SE from South MH (SW08) downstream	MH-11 from Phillips66/CB44 (SW02) downstream	MH-11 from HWY30-2 (SW04) downstream	MH-11 from HWY30-2, Duplicate (SW05) downstream	MH- HWY30-1 (SW03) upstream	MH- HWY30-1 (SW11) upstream	MH-HWY30- 2 (SW12) upstream	CB-44 (SW13) downstream	Dissolved Result
	Value (µg/L)	Note	3/16/2015	9/16/2014	3/16/2015	3/16/2015	9/16/2014	3/16/2015	3/16/2015	3/16/2015	
			Result	Result	Result	Result	Result	Result	Result	Result	
Cadmium, Dissolved (field filtered)	0.094	EPA's 2004 NRQWC (organism only)	0.065 J	0.078 J	0.071 J	0.1	0.25 U	0.05 U	0.05 U	0.05 U	NA
Chromium, Total	100	MCL	1.4	1.1	1.4	1.5	9.6	1.9	1.4	4.9	NA
Chromium, Dissolved (field filtered)	NA	NA	0.61	0.27 J	0.34 J	0.66	1.0 U	0.25 J	0.36 J	0.2 U	NA
Lead, Total	--	--	1.2 B	78	1.3	1.2	29	0.94	0.72	27	NA
Lead, Dissolved (field filtered)	0.54	EPA's 2004 NRQWC (organism only)	0.38	0.47	0.2	0.53	0.78	0.11	0.093 J	0.24	NA
Selenium, Total	5	--	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	NA
Selenium, Dissolved (field filtered)	--	EPA's 2004 NRQWC (organism only)	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	NA
Silver, Total	0.12	DEQ's 2004 AWQC (chronic)	0.05 U	0.064 J	0.13	0.05 U	0.25 U	0.09 J	0.05 U	0.05 U	NA
Silver, Dissolved (field filtered)	--	--	0.05 U	0.05 U	0.099 J	0.15	0.25 U	0.05 U	0.05 U	0.05 U	NA
Mercury, Total (7470A)	--	--	0.056 J	0.041 U	0.041 U	0.041 U	0.8	0.041 U	0.041 U	0.19 J	NA
Mercury, Dissolved (7470A, field filtered)	0.77	EPA's 2004 NRQWC (chronic)	0.041 U	0.041 U	0.041 U	0.041 U	0.3	0.041 U	0.041 U	0.041 U	NA
TPH											
Gasoline Range (NWTPH-GX)	NA	NA	27 U	10 U	27 U	27 U	10 U	27 U	27 U	NA	NA
Diesel Range (#2 C10-C24) (NWTPH-DX)	NA	NA	140 UJ	110 U	65 UJ	150 J	390 J	87 UJ	110 U	NA	NA
Motor Oil (>C24-C36) (NWTPH-DX)	NA	NA	34 U	180 U	30 U	46 J	450 J	30 U	30 U	NA	NA
PCBs^d (8082A)											
Aroclor® 1016	0.96	Tap Water PRG	0.0057 U	0.0052 U	0.0053 U	0.0047 U	0.0051 U	0.0053 U	0.0054 U	NA	NA
Aroclor® 1221	0.034	Tap Water PRG	0.0079 U	0.0072 U	0.0073 U	0.0064 U	0.007 U	0.0072 U	0.0075 U	NA	NA
Aroclor® 1232	0.034	Tap Water PRG	0.0052 U	0.0048 U	0.0048 U	0.0043 U	0.0046 U	0.0048 U	0.0049 U	NA	NA
Aroclor® 1242	0.034	Tap Water PRG	0.0052 U	0.0048 U	0.0048 U	0.0043 U	0.0046 U	0.0048 U	0.0049 U	NA	NA
Aroclor® 1248	0.034	Tap Water PRG	0.0090 U	0.0083 U	0.0083 U	0.0074 U	0.008 U	0.0083 U	0.0085 U	NA	NA
Aroclor® 1254	0.033	Oak Ridge National Laboratory's (Tier II SCV)	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0049 U	0.0051 U	0.0053 U	NA	NA
Aroclor® 1260	0.034	Tap Water PRG	0.0050 U	0.0045 U	0.0046 U	0.0040 U	0.0044 U	0.0046 U	0.0047 U	NA	NA
Total PCBs	0.000064	Portland Harbor specific fish consumption rate	0.0090 U	0.0083 U			0.0080 U	0.0083 U	0.0085 U	NA	NA

Table 3. Storm Drain Sampling Analytical Results (2009 - 2015)

Analyte	JSCS Screening Levels ^a		MH-SE from South MH (SW08) downstream	MH-11 from Phillips66/CB44 (SW02) downstream	MH-11 from HWY30-2 (SW04) downstream	MH-11 from HWY30-2, Duplicate (SW05) downstream	MH- HWY30-1 (SW03) upstream	MH- HWY30-1 (SW11) upstream	MH-HWY30- 2 (SW12) upstream	CB-44 (SW13) downstream	Dissolved Result
	Value (µg/L)	Note	3/16/2015	9/16/2014	3/16/2015	3/16/2015	9/16/2014	3/16/2015	3/16/2015	3/16/2015	
			Result	Result	Result	Result	Result	Result	Result	Result	
Phthalates (8270D)											
Butylbenzylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.16 U	0.11 UJ	0.29 U	0.38	0.6 UJ	0.32 U	0.24 U	NA	NA
Bis(2-ethylhexyl)phthalate	2.2	EPA's 2004 NRQWC (organism only)	0.66 U	1.3 UJ	3.6 J	0.65 U	3.5 UJ	1.2 J	0.73 U	NA	NA
Diethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.056 U	0.057 UJ	0.11 J	0.055 U	0.3 UJ	0.055 U	0.062 U	NA	NA
Dimethylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.056 U	0.15 J	0.056 U	0.055 U	0.3 UJ	0.055 U	0.062 U	NA	NA
Di-n-butylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.073 U	0.074 UJ	0.072 U	0.093 U	0.39 UJ	0.12 U	0.092 U	NA	NA
Di-n-octylphthalate	3.0	DEQ's 2004 AWQC (chronic)	0.10 U	0.1 UJ	0.10 U	0.10 U	0.54 UJ	0.10 U	0.11 U	NA	NA

Notes:

Bold indicate concentrations above the JSCS screening level value

-- = no highlighted value provided in DEQ JSCS Table 3-1 (7/16/2007 Revision) Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water

AWQC = ambient water quality criteria

DEQ = Oregon Department of Environmental Quality

EPA = U.S. Environmental Protection Agency

JSCS = Joint Source Control Strategy

MCL = maximum contaminant level

NA = not applicable

NRQWC = National Recommended Water Quality Criteria

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

PRG = preliminary remediation goal

SCV = secondary chronic value

TPH = total petroleum hydrocarbon

Data Qualifiers

U = The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

UJ = Estimated and Not Detected. The analyte is considered to be not detected at the reported value, and the associated numerical value is an estimated value.

J = The associated numerical value is an estimated quantity.

^aTable 3-1 (7/16/2007 Revision) Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water

^bMethod reporting limit and method detection limit for TestAmerica Portland 8270D SIM

^cMethod reporting limit and method detection limit for TestAmerica Irvine 6020

^dMethod reporting limit and method detection limit low level 1 L to 1 mL final volume

ATTACHMENT A

CORRESPONDENCE



Oregon

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March, 2015

Bruce Sheppard
Burlington Northern Santa Fe Railway Company
2454 Occidental Avenue S., Suite #1A
Seattle, Washington 98134

Re: Addendum 3 to the Expanded Preliminary Assessment and Source Control Evaluation
2014 Dry Weather Storm Drain Sampling Results
Willbridge Yard, Burlington Northern Santa Fe Railway Company
Portland, Oregon
ECSI# 3395

Mr. Sheppard:

DEQ reviewed the report titled Addendum 3 to the *Expanded Preliminary Assessment and Source Control Evaluation - 2014 Dry Weather Storm Drain Sampling Results* (Report), dated December 22, 2014, (received February 12, 2015) completed by Integral Consulting, Inc. (Integral) for the BNSF Willbridge Rail Yard. The Report summarizes dry weather observations in the stormwater system beneath the site and report the analytical results of samples collected during those observations. The Report also includes a proposal to collect storm-event stormwater samples in lieu of previously agreed upon video survey of the storm sewer system beneath the site.

The sampling was generally conducted in accordance with the work plan, though not all manhole locations could be sampled due to lack of observed flow (MH-SE, MH-9, MH-HWY 30-3, MH-Hwy 30-2). Catch basin CB-44, located on the BNSF property was also dry. Catch basin CB-44 appears to connect with the system beneath the adjacent Phillips 66 facility, before connecting ultimately with MH-11. Flow was reportedly observed entering MH-11 from what was believed to be a separate part of the Phillips 66 storm system.

Dry weather flow rates were estimated where possible, and a flow rate of 0.2 gallons per minute (gpm) was observed in MH-11. The next manhole in the "downstream" direction was South-MH, which had an estimated flow rate of approximately 0.4 gpm. While this estimate is twice the flow if the "upstream" flow estimate in MH-11, both flow rates are relatively low.

Diesel range organics (DRO), heavy oil range organics, total arsenic, dissolved lead and cadmium, and benzo(b)fluoranthene were detected in samples at concentrations greater than the Joint Source Control Strategy (JSCS) Screening Level Values (SLVs). Phthalate analyses were affected by laboratory QA/QC issues, but an estimated concentration below the reporting limit ("J" flagged) for bis(2-ethylhexyl) phthalate was also detected at a concentration greater than the associated JSCS SLV.

DEQ requested that BNSF video survey of the storm sewer lines beneath the site to evaluate whether damaged piping may be present, potentially allowing groundwater intrusion into the conveyance pipes. This was outlined in DEQ's letter to BNSF, dated July 28, 2014, and further discussed and agreed to in a subsequent meeting between DFEQ and BNSF on August 4, 2014. The purpose of that survey was to

verify pipe layout, and focus sampling if pipe damage and indications of groundwater intrusion into the stormwater piping was evident. The Report proposes that video survey be substituted with additional wet weather stormwater sampling.

BNSF may move forward with the sampling proposed in the Report, in lieu of video surveying, as the ultimate goal of these evaluations is meaningful sample data. The analyte list will be the same as the August work plan, and include all of the accessible points that have measurable flow during the rain event: CB-44, MH-9, MH-11, South MH, MH SE, and MH-Hwy30-1, 2, and 3. As the only catch basin present at the site, DEQ expects that CB-44 will be sampled as part of this event. Following the sampling event, DEQ requests that all stormwater samples, dry weather flow samples, and any solids sample data pertaining to the Source Control Evaluation (SCE) for the site be collected and summarized in one data report, so that a meaningful discussion of contaminant trends, screening, data interpretation and conclusions can be in a single document for DEQ review.

Please call me at (503) 229-5614 or contact me via e-mail at rapp.shawn@deq.state.or.us if you have any questions about the information presented in this letter.

Sincerely,



Shawn Rapp, Project Manager
NWR Cleanup Section

Cc: Keith Johnson, DEQ (electronic)
Matt McClincy, DEQ (electronic)
Dan Hafley, DEQ (electronic)
Alex Liverman, DEQ (electronic)
Linda Scheffler, City of Portland, BES (electronic)
Linda Baker, Integral
Alexis Clark, Integral
ECSI File # 3395

From: [RAPP Shawn](#)
To: [Linda Baker](#); [Alexis Clark](#)
Cc: [LIVERMAN Alex](#); "[Sheppard, Bruce A](#)"
Subject: FW: Addendum 3 Comments
Date: Monday, March 09, 2015 4:11:47 PM

Linda/Alexis,

Alex made a point (see below) that I neglected to reiterate in the recent comment letter – please strive for first flush conditions as outlined in the JSCS as best you can on this upcoming sample event.

Sincerely,

Shawn R. Rapp, R.G.
Project Manager
Northwest Region Cleanup Program
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, OR 97201
Phone: (503) 229-5614

This spring, DEQ's Northwest Region Office will be moving to a new location - the 700 Lloyd Building at 700 NE Multnomah St., Suite #600, Portland, OR 97232. The target date for operating at the new location is May 26th, 2015.

From: LIVERMAN Alex
Sent: Monday, March 09, 2015 3:56 PM
To: RAPP Shawn
Subject: RE: Addendum 3 Comments

Hi Shawn.

I think it is important to clarify that they strive to meet the storm sampling protocols of first flush (within 30 min of start of flow) or within 3 hours of when flow begins in the site system, as required in the guidance. This was not clear in their plan.

Thanks.

--Alex

From: RAPP Shawn
Sent: Monday, March 09, 2015 3:50 PM
To: 'Sheppard, Bruce A'
Cc: 'Linda Baker'; 'Scheffler, Linda'; LIVERMAN Alex; HAFLEY Dan; MCCLINCY Matt; Alexis Clark; JOHNSON Keith
Subject: Addendum 3 Comments

Bruce,

I have attached our comments on the Addendum 3 to the XPA/Dry Weather Flow Report. If you have any questions, feel free to contact me.

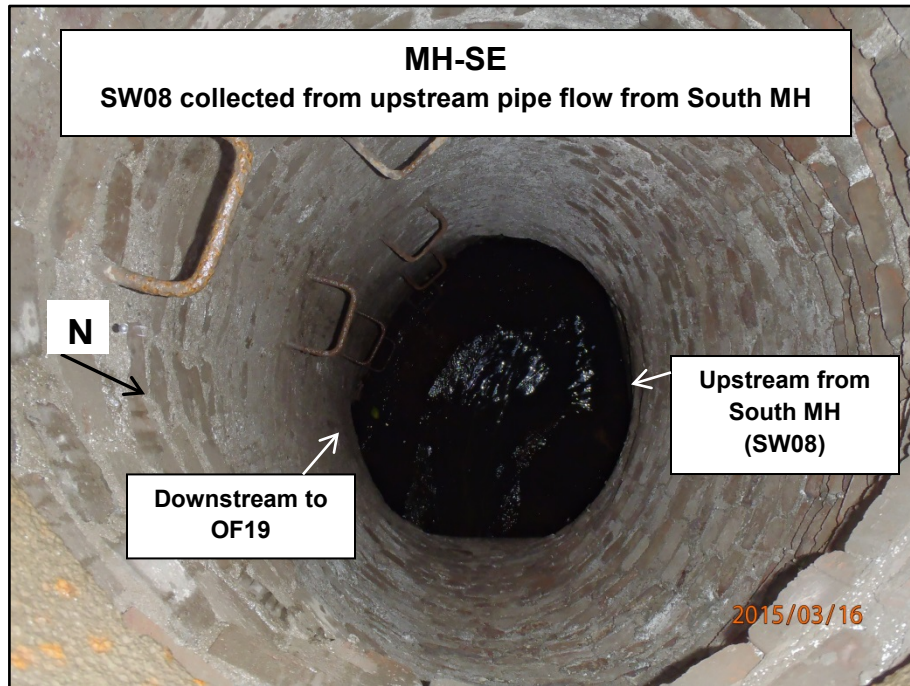
Sincerely,

Shawn R. Rapp, R.G.
Project Manager
Northwest Region Cleanup Program
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, OR 97201
Phone: (503) 229-5614

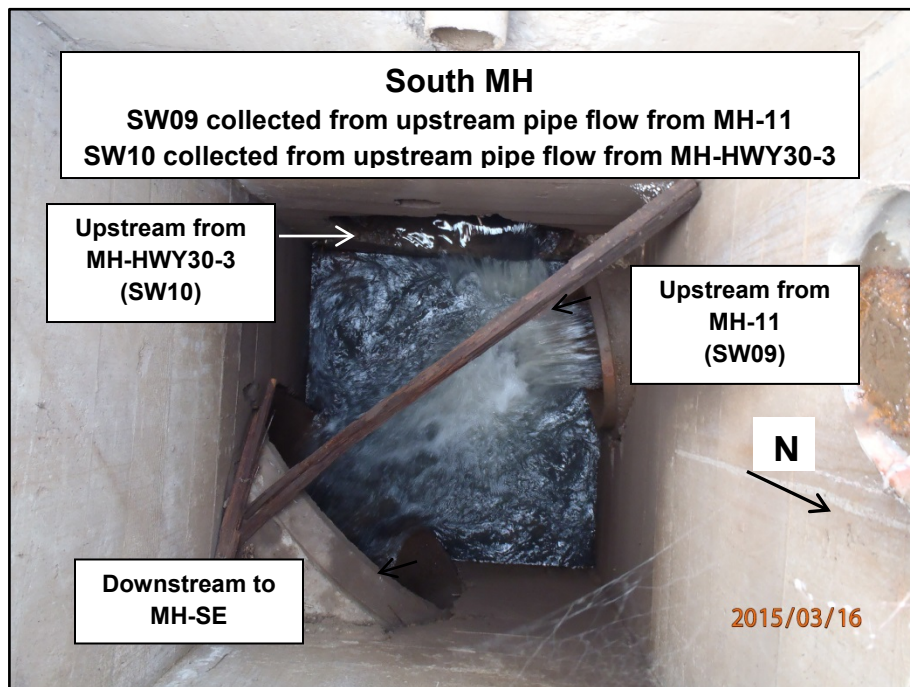
This spring, DEQ's Northwest Region Office will be moving to a new location - the 700 Lloyd Building at 700 NE Multnomah St., Suite #600, Portland, OR 97232. The target date for operating at the new location is May 26th, 2015.

ATTACHMENT B

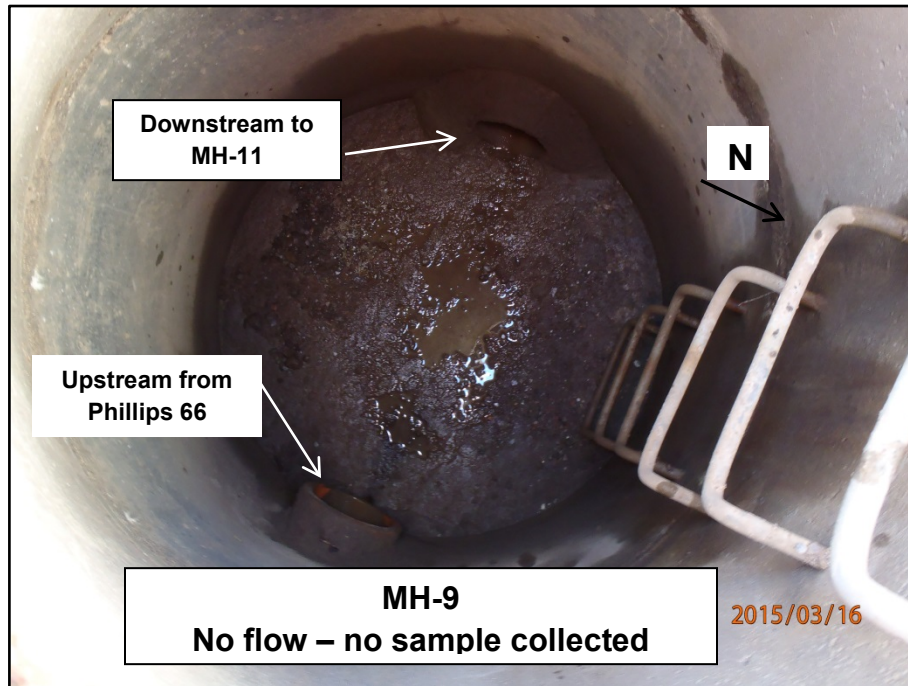
PHOTOGRAPHS



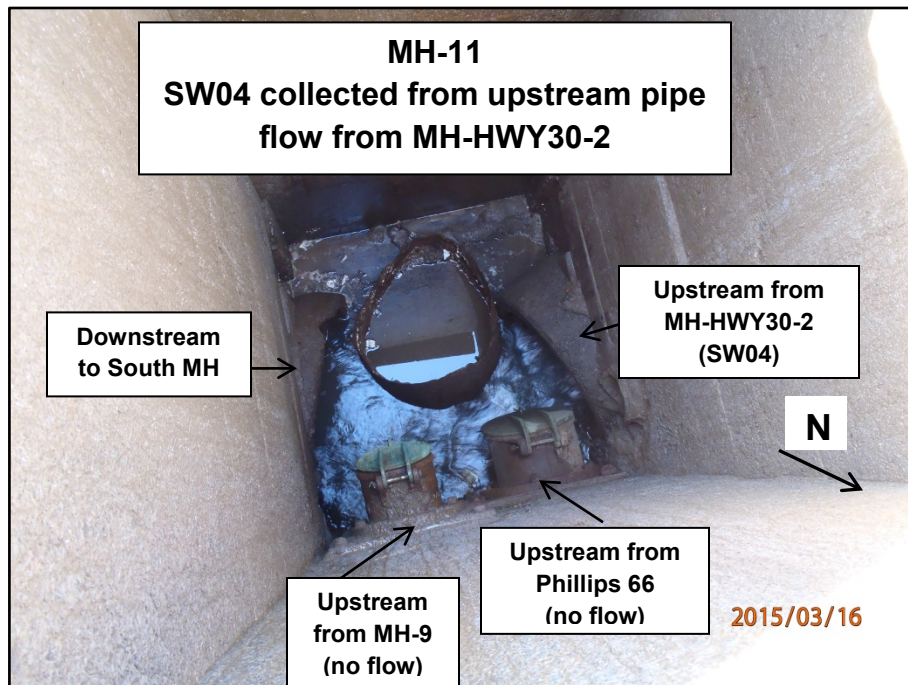
Photograph 1. Looking into MH-SE



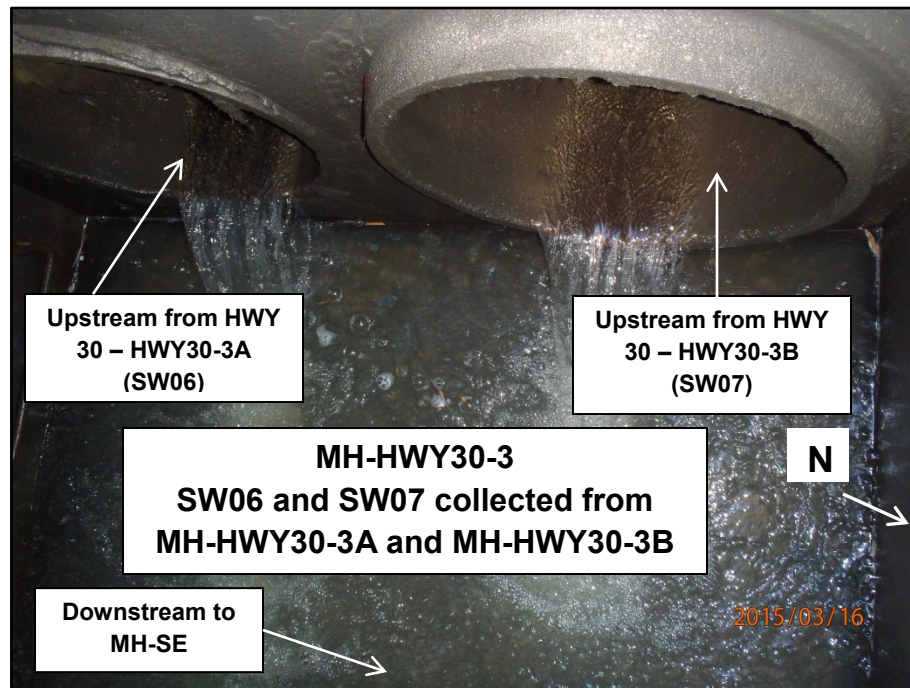
Photograph 2. Looking into South MH



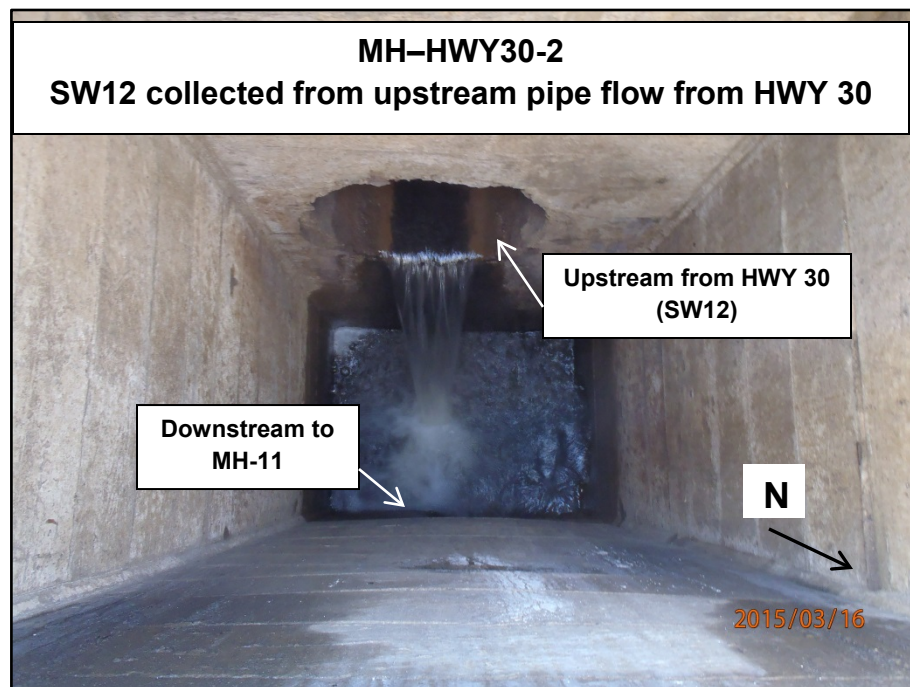
Photograph 3. Looking into MH-9



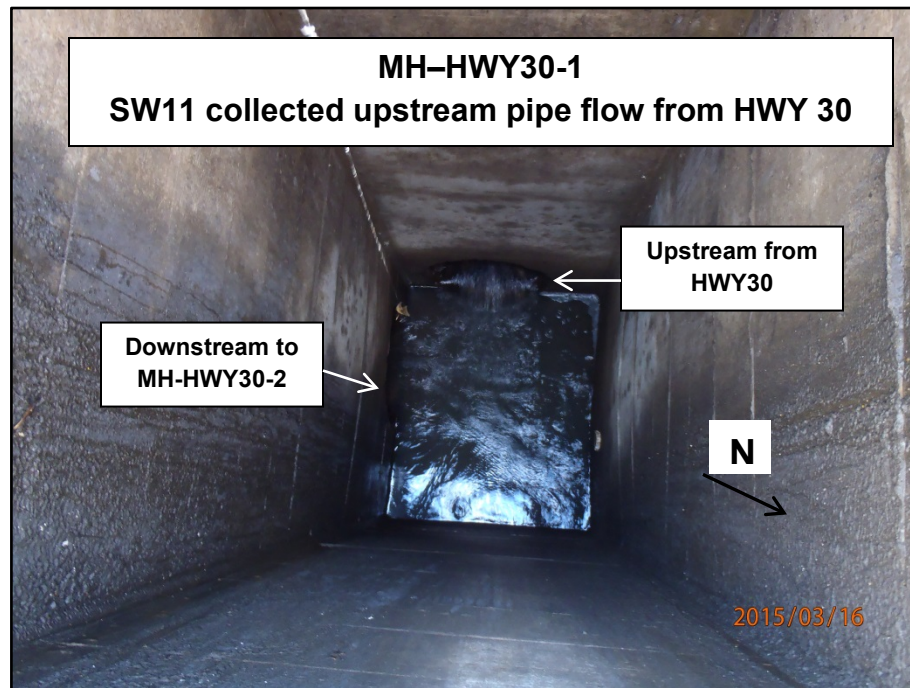
Photograph 4. Looking into MH-11



Photograph 5. Looking into MH-HWY30-3



Photograph 6. Looking into MH-HWY30-2



Photograph 7. Looking into MH-HWY30-1



Photograph 8. Looking into CB-44

ATTACHMENT C

LABORATORY ANALYTICAL DATA PACKAGE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-48061-1

Client Project/Site: BNSF Willbridge Yard

For:

Integral Consulting Inc
319 SW Washington Avenue
Suite 1150
Portland, Oregon 97204

Attn: Glenn Esler



Authorized for release by:
4/6/2015 4:45:10 PM

Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Sample Summary	47
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Case Narrative

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Job ID: 580-48061-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-48061-1

Comments

No additional comments.

Receipt

The samples were received on 3/17/2015 3:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.6° C, 0.6° C, 0.9° C, 1.0° C and 2.4° C.

GC/MS VOA

Method(s) NWTPH-Gx: The method blank for batch 184878 contained Gasoline above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270D: The method blank for batch 184781 contained Butyl benzyl phthalate and Di-n-butyl phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not warranted.

Method(s) 8270D: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 184781 recovered outside control limits for Bis(2-ethylhexyl) phthalate. This analyte had passing recovery in both LCS and LCSD.

Method(s) 8270D: Surrogate recovery for the laboratory control sample (LCS) in batch 184781 was below acceptance limits. Target analyte recovery was passing, and all other QC and sample extracts had passing surrogate. Overall batch recovery for surrogate was in good control so the low surrogate in the LCS appears to be from a spiking error in prep, not poor extraction performance. It was not possible to perform re-extraction in-hold; therefore, the data have been reported.

Method(s) 8270D SIM: The method blank for prep batch 184781 contained Phenanthrene and Anthracene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8270D SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with prep batch 184781: Benzo(k)fluoranthene. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported. Affected samples: (LCS 580-184781/2-A), (LCSD 580-184781/3-A), SW04-031615 (580-48061-1), SW05-031615 (580-48061-2), SW06-031615 (580-48061-3), SW07-031615 (580-48061-4), SW08-031615 (580-48061-5), SW09-031615 (580-48061-6), SW10-031615 (580-48061-7), SW11-031615 (580-48061-8), SW12-031615 (580-48061-9), SW13-031615 (580-48061-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: In analysis batch 184943, the method blank for preparation batch 184908 contained DRO (C10-C24) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) NWTPH-Dx: In analysis batch 184943, the %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 184908 recovered outside control limits for the following analytes: DRO (C10-C24). The %recoveries of the affected analyte in the LCS and LCSD were within acceptance limits; therefore, the data have been qualified and reported.

Method(s) NWTPH-Dx: In analysis batch 185187, the method blank for preparation batch 185136 contained #2 Diesel Fuel (C10-C24) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Case Narrative

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Job ID: 580-48061-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) NWTPH-Dx: In analysis batch 184943, the following sample from preparation batch 184908 contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: SW05-031615 (580-48061-2).

Method(s) NWTPH-Dx: In analysis batch 184943, the peak profile present in this sample SW08-031615 (580-48061-5) is atypical of a hydrocarbon pattern and consists of two (2) discrete peaks.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method(s) 6020: In analysis batch 245175, the method blank for preparation batch 244405 contained arsenic above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: In analysis batch 245175, the method blank for preparation batch 244430 contained barium and lead above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
X	Surrogate is outside control limits

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Y	The chromatographic response resembles a typical fuel pattern.
Z	The chromatographic response does not resemble a typical fuel pattern.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW04-031615

Lab Sample ID: 580-48061-1

Date Collected: 03/16/15 10:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0038	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
2-Methylnaphthalene	ND		0.014	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Acenaphthene	0.0037	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Acenaphthylene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Anthracene	0.010	J B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Benzo[a]anthracene	0.0062	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Benzo[a]pyrene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Benzo[b]fluoranthene	0.014		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Benzo[g,h,i]perylene	0.0079	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Benzo[k]fluoranthene	0.0048	J *	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Chrysene	0.0095	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Dibenz(a,h)anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Fluoranthene	0.0099	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Fluorene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Indeno[1,2,3-cd]pyrene	0.0081	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Naphthalene	0.016		0.011	0.0040	ug/L		03/19/15 14:53	03/28/15 17:52	1
Phenanthrene	0.0067	J B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1
Pyrene	0.011		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	94		64 - 150	03/19/15 14:53	03/28/15 17:52	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	3.6	*	1.7	0.66	ug/L		03/19/15 14:53	03/24/15 21:59	1
Butyl benzyl phthalate	0.29	J B	0.33	0.11	ug/L		03/19/15 14:53	03/24/15 21:59	1
Diethyl phthalate	0.11	J	0.22	0.056	ug/L		03/19/15 14:53	03/24/15 21:59	1
Dimethyl phthalate	ND		0.22	0.056	ug/L		03/19/15 14:53	03/24/15 21:59	1
Di-n-butyl phthalate	ND		0.22	0.072	ug/L		03/19/15 14:53	03/24/15 21:59	1
Di-n-octyl phthalate	ND		0.22	0.10	ug/L		03/19/15 14:53	03/24/15 21:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	69		44 - 125	03/19/15 14:53	03/24/15 21:59	1
2-Fluorobiphenyl	67		50 - 120	03/19/15 14:53	03/24/15 21:59	1
2-Fluorophenol (Surr)	49		30 - 134	03/19/15 14:53	03/24/15 21:59	1
Nitrobenzene-d5 (Surr)	70		59 - 120	03/19/15 14:53	03/24/15 21:59	1
Phenol-d5 (Surr)	62		52 - 120	03/19/15 14:53	03/24/15 21:59	1
Terphenyl-d14 (Surr)	89		64 - 150	03/19/15 14:53	03/24/15 21:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 19:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		03/20/15 19:21	1
Trifluorotoluene (Surr)	109		50 - 150		03/20/15 19:21	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.059	0.0053	ug/L		03/20/15 14:36	03/25/15 16:36	1
PCB-1221	ND		0.059	0.0073	ug/L		03/20/15 14:36	03/25/15 16:36	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW04-031615

Lab Sample ID: 580-48061-1

Date Collected: 03/16/15 10:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.059	0.0048	ug/L		03/20/15 14:36	03/25/15 16:36	1
PCB-1242	ND		0.059	0.0048	ug/L		03/20/15 14:36	03/25/15 16:36	1
PCB-1248	ND		0.059	0.0083	ug/L		03/20/15 14:36	03/25/15 16:36	1
PCB-1254	ND		0.059	0.0052	ug/L		03/20/15 14:36	03/25/15 16:36	1
PCB-1260	ND		0.059	0.0046	ug/L		03/20/15 14:36	03/25/15 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	98		38 - 121	03/20/15 14:36	03/25/15 16:36	1
Tetrachloro-m-xylene	79		26 - 124	03/20/15 14:36	03/25/15 16:36	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	65	J B *	130	20	ug/L		03/20/15 17:46	03/23/15 12:30	1
Motor Oil (>C24-C36)	ND		260	30	ug/L		03/20/15 17:46	03/23/15 12:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150	03/20/15 17:46	03/23/15 12:30	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.65		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:33	1
Barium	29	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:33	1
Cadmium	0.089	J	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:33	1
Chromium	1.4		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:33	1
Lead	1.3	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:33	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:09	1
Silver	0.13		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:33	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.39	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:34	1
Barium	16		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:34	1
Cadmium	0.071	J	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:34	1
Chromium	0.34	J	0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:34	1
Lead	0.20		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:34	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:16	1
Silver	0.099	J	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:34	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:24	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:00	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW05-031615

Lab Sample ID: 580-48061-2

Date Collected: 03/16/15 10:50

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0034	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
2-Methylnaphthalene	ND		0.014	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Acenaphthene	0.0046	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Acenaphthylene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Anthracene	0.014	B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Benzo[a]anthracene	0.0067	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Benzo[a]pyrene	0.0041	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Benzo[b]fluoranthene	0.015		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Benzo[g,h,i]perylene	0.0074	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Benzo[k]fluoranthene	0.0053	J *	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Chrysene	0.011		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Dibenz(a,h)anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Fluoranthene	0.013		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Fluorene	0.0042	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Indeno[1,2,3-cd]pyrene	0.0085	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Naphthalene	0.022		0.011	0.0040	ug/L		03/19/15 14:53	03/28/15 18:14	1
Phenanthrene	0.010	J B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1
Pyrene	0.013		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	103		64 - 150	03/19/15 14:53	03/28/15 18:14	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1.7	0.65	ug/L		03/19/15 14:53	03/26/15 00:35	1
Butyl benzyl phthalate	0.38		0.33	0.11	ug/L		03/19/15 14:53	03/26/15 00:35	1
Diethyl phthalate	ND		0.22	0.055	ug/L		03/19/15 14:53	03/26/15 00:35	1
Dimethyl phthalate	ND		0.22	0.055	ug/L		03/19/15 14:53	03/26/15 00:35	1
Di-n-butyl phthalate	0.093	J	0.22	0.072	ug/L		03/19/15 14:53	03/26/15 00:35	1
Di-n-octyl phthalate	ND		0.22	0.10	ug/L		03/19/15 14:53	03/26/15 00:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	86		44 - 125	03/19/15 14:53	03/26/15 00:35	1
2-Fluorobiphenyl	77		50 - 120	03/19/15 14:53	03/26/15 00:35	1
2-Fluorophenol (Surr)	81		30 - 134	03/19/15 14:53	03/26/15 00:35	1
Nitrobenzene-d5 (Surr)	88		59 - 120	03/19/15 14:53	03/26/15 00:35	1
Phenol-d5 (Surr)	85		52 - 120	03/19/15 14:53	03/26/15 00:35	1
Terphenyl-d14 (Surr)	93		64 - 150	03/19/15 14:53	03/26/15 00:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		03/20/15 19:54	1
Trifluorotoluene (Surr)	108		50 - 150		03/20/15 19:54	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.052	0.0047	ug/L		03/20/15 14:36	03/25/15 16:52	1
PCB-1221	ND		0.052	0.0064	ug/L		03/20/15 14:36	03/25/15 16:52	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW05-031615

Lab Sample ID: 580-48061-2

Date Collected: 03/16/15 10:50

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.052	0.0043	ug/L		03/20/15 14:36	03/25/15 16:52	1
PCB-1242	ND		0.052	0.0043	ug/L		03/20/15 14:36	03/25/15 16:52	1
PCB-1248	ND		0.052	0.0074	ug/L		03/20/15 14:36	03/25/15 16:52	1
PCB-1254	ND		0.052	0.0046	ug/L		03/20/15 14:36	03/25/15 16:52	1
PCB-1260	ND		0.052	0.0040	ug/L		03/20/15 14:36	03/25/15 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	93		38 - 121				03/20/15 14:36	03/25/15 16:52	1
Tetrachloro-m-xylene	80		26 - 124				03/20/15 14:36	03/25/15 16:52	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	150	B * Y	130	20	ug/L		03/20/15 17:46	03/23/15 13:03	1
Motor Oil (>C24-C36)	46	J	270	31	ug/L		03/20/15 17:46	03/23/15 13:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				03/20/15 17:46	03/23/15 13:03	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.57		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:38	1
Barium	25	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:38	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:38	1
Chromium	1.5		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:38	1
Lead	1.2	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:38	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:26	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:38	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.48	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:43	1
Barium	19		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:43	1
Cadmium	0.10		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:43	1
Chromium	0.66		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:43	1
Lead	0.53		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:43	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:26	1
Silver	0.15		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:43	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:34	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:02	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW06-031615

Lab Sample ID: 580-48061-3

Date Collected: 03/16/15 11:50

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
2-Methylnaphthalene	ND		0.015	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Acenaphthene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Acenaphthylene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Anthracene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Benzo[a]anthracene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Benzo[a]pyrene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Benzo[b]fluoranthene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Benzo[g,h,i]perylene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Benzo[k]fluoranthene	ND	*	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Chrysene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Dibenz(a,h)anthracene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Fluoranthene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Fluorene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Indeno[1,2,3-cd]pyrene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Naphthalene	ND		0.011	0.0041	ug/L		03/19/15 14:53	03/28/15 18:36	1
Phenanthrene	0.0042	J B	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1
Pyrene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 18:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		64 - 150	03/19/15 14:53	03/28/15 18:36	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.7	0.67	ug/L		03/19/15 14:53	03/26/15 01:01	1
Butyl benzyl phthalate	0.45	B	0.34	0.11	ug/L		03/19/15 14:53	03/26/15 01:01	1
Diethyl phthalate	ND		0.23	0.057	ug/L		03/19/15 14:53	03/26/15 01:01	1
Dimethyl phthalate	ND		0.23	0.057	ug/L		03/19/15 14:53	03/26/15 01:01	1
Di-n-butyl phthalate	ND		0.23	0.074	ug/L		03/19/15 14:53	03/26/15 01:01	1
Di-n-octyl phthalate	ND		0.23	0.10	ug/L		03/19/15 14:53	03/26/15 01:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	69		44 - 125	03/19/15 14:53	03/26/15 01:01	1
2-Fluorobiphenyl	59		50 - 120	03/19/15 14:53	03/26/15 01:01	1
2-Fluorophenol (Surr)	52		30 - 134	03/19/15 14:53	03/26/15 01:01	1
Nitrobenzene-d5 (Surr)	60		59 - 120	03/19/15 14:53	03/26/15 01:01	1
Phenol-d5 (Surr)	60		52 - 120	03/19/15 14:53	03/26/15 01:01	1
Terphenyl-d14 (Surr)	77		64 - 150	03/19/15 14:53	03/26/15 01:01	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					03/20/15 20:27	1
Trifluorotoluene (Surr)	106		50 - 150					03/20/15 20:27	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.059	0.0053	ug/L		03/20/15 14:36	03/25/15 17:09	1
PCB-1221	ND		0.059	0.0073	ug/L		03/20/15 14:36	03/25/15 17:09	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW06-031615

Lab Sample ID: 580-48061-3

Date Collected: 03/16/15 11:50

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.059	0.0048	ug/L		03/20/15 14:36	03/25/15 17:09	1
PCB-1242	ND		0.059	0.0048	ug/L		03/20/15 14:36	03/25/15 17:09	1
PCB-1248	ND		0.059	0.0084	ug/L		03/20/15 14:36	03/25/15 17:09	1
PCB-1254	ND		0.059	0.0052	ug/L		03/20/15 14:36	03/25/15 17:09	1
PCB-1260	ND		0.059	0.0046	ug/L		03/20/15 14:36	03/25/15 17:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	102		38 - 121				03/20/15 14:36	03/25/15 17:09	1
Tetrachloro-m-xylene	75		26 - 124				03/20/15 14:36	03/25/15 17:09	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	95	J B *	140	21	ug/L		03/20/15 17:46	03/23/15 13:19	1
Motor Oil (>C24-C36)	ND		270	32	ug/L		03/20/15 17:46	03/23/15 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				03/20/15 17:46	03/23/15 13:19	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.33		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:41	1
Barium	26	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:41	1
Cadmium	0.053	J	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:41	1
Chromium	1.3		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:41	1
Lead	1.1	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:41	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:28	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:41	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.23	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:48	1
Barium	22		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:48	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:48	1
Chromium	0.63		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:48	1
Lead	0.43		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:48	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:39	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:48	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:36	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:05	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW07-031615

Lab Sample ID: 580-48061-4

Date Collected: 03/16/15 12:20

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0033	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
2-Methylnaphthalene	ND		0.014	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Acenaphthene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Acenaphthylene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Benzo[a]anthracene	0.0041	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Benzo[a]pyrene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Benzo[b]fluoranthene	0.0061	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Benzo[g,h,i]perylene	0.0040	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Benzo[k]fluoranthene	ND	*	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Chrysene	0.0053	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Dibenz(a,h)anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Fluoranthene	0.0071	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Fluorene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Indeno[1,2,3-cd]pyrene	0.0041	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Naphthalene	ND		0.011	0.0040	ug/L		03/19/15 14:53	03/28/15 18:58	1
Phenanthrene	0.0061	J B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1
Pyrene	0.0065	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 18:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		64 - 150	03/19/15 14:53	03/28/15 18:58	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.7	0.66	ug/L		03/19/15 14:53	03/26/15 01:27	1
Butyl benzyl phthalate	0.13	J B	0.33	0.11	ug/L		03/19/15 14:53	03/26/15 01:27	1
Diethyl phthalate	ND		0.22	0.056	ug/L		03/19/15 14:53	03/26/15 01:27	1
Dimethyl phthalate	ND		0.22	0.056	ug/L		03/19/15 14:53	03/26/15 01:27	1
Di-n-butyl phthalate	ND		0.22	0.072	ug/L		03/19/15 14:53	03/26/15 01:27	1
Di-n-octyl phthalate	ND		0.22	0.10	ug/L		03/19/15 14:53	03/26/15 01:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	69		44 - 125	03/19/15 14:53	03/26/15 01:27	1
2-Fluorobiphenyl	63		50 - 120	03/19/15 14:53	03/26/15 01:27	1
2-Fluorophenol (Surr)	65		30 - 134	03/19/15 14:53	03/26/15 01:27	1
Nitrobenzene-d5 (Surr)	70		59 - 120	03/19/15 14:53	03/26/15 01:27	1
Phenol-d5 (Surr)	72		52 - 120	03/19/15 14:53	03/26/15 01:27	1
Terphenyl-d14 (Surr)	80		64 - 150	03/19/15 14:53	03/26/15 01:27	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 22:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150		03/20/15 22:05	1
Trifluorotoluene (Surr)	100		50 - 150		03/20/15 22:05	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.057	0.0051	ug/L		03/20/15 14:36	03/25/15 17:26	1
PCB-1221	ND		0.057	0.0071	ug/L		03/20/15 14:36	03/25/15 17:26	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW07-031615

Lab Sample ID: 580-48061-4

Date Collected: 03/16/15 12:20

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.057	0.0047	ug/L		03/20/15 14:36	03/25/15 17:26	1
PCB-1242	ND		0.057	0.0047	ug/L		03/20/15 14:36	03/25/15 17:26	1
PCB-1248	ND		0.057	0.0081	ug/L		03/20/15 14:36	03/25/15 17:26	1
PCB-1254	ND		0.057	0.0050	ug/L		03/20/15 14:36	03/25/15 17:26	1
PCB-1260	ND		0.057	0.0044	ug/L		03/20/15 14:36	03/25/15 17:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	104		38 - 121				03/20/15 14:36	03/25/15 17:26	1
Tetrachloro-m-xylene	77		26 - 124				03/20/15 14:36	03/25/15 17:26	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	91	J B *	130	20	ug/L		03/20/15 17:46	03/23/15 13:35	1
Motor Oil (>C24-C36)	ND		260	31	ug/L		03/20/15 17:46	03/23/15 13:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				03/20/15 17:46	03/23/15 13:35	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.30		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:49	1
Barium	28	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:49	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:49	1
Chromium	1.7		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:49	1
Lead	1.2	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:49	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:31	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:49	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.25	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:51	1
Barium	22		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:51	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:51	1
Chromium	0.66		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:51	1
Lead	0.54		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:51	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:41	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:51	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:39	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:07	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW08-031615

Lab Sample ID: 580-48061-5

Date Collected: 03/16/15 08:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
2-Methylnaphthalene	ND		0.015	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Acenaphthene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Acenaphthylene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Anthracene	0.015	B	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Benzo[a]anthracene	0.0074	J	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Benzo[a]pyrene	0.0039	J	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Benzo[b]fluoranthene	0.016		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Benzo[g,h,i]perylene	0.0063	J	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Benzo[k]fluoranthene	0.0049	J *	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Chrysene	0.013		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Dibenz(a,h)anthracene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Fluoranthene	0.012		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Fluorene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Indeno[1,2,3-cd]pyrene	0.0076	J	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Naphthalene	0.021		0.011	0.0040	ug/L		03/19/15 14:53	03/28/15 19:19	1
Phenanthrene	0.0056	J B	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1
Pyrene	0.014		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	110		64 - 150	03/19/15 14:53	03/28/15 19:19	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.7	0.66	ug/L		03/19/15 14:53	03/26/15 01:53	1
Butyl benzyl phthalate	0.16	J B	0.34	0.11	ug/L		03/19/15 14:53	03/26/15 01:53	1
Diethyl phthalate	ND		0.22	0.056	ug/L		03/19/15 14:53	03/26/15 01:53	1
Dimethyl phthalate	ND		0.22	0.056	ug/L		03/19/15 14:53	03/26/15 01:53	1
Di-n-butyl phthalate	ND		0.22	0.073	ug/L		03/19/15 14:53	03/26/15 01:53	1
Di-n-octyl phthalate	ND		0.22	0.10	ug/L		03/19/15 14:53	03/26/15 01:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	75		44 - 125	03/19/15 14:53	03/26/15 01:53	1
2-Fluorobiphenyl	61		50 - 120	03/19/15 14:53	03/26/15 01:53	1
2-Fluorophenol (Surr)	56		30 - 134	03/19/15 14:53	03/26/15 01:53	1
Nitrobenzene-d5 (Surr)	67		59 - 120	03/19/15 14:53	03/26/15 01:53	1
Phenol-d5 (Surr)	64		52 - 120	03/19/15 14:53	03/26/15 01:53	1
Terphenyl-d14 (Surr)	88		64 - 150	03/19/15 14:53	03/26/15 01:53	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 22:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					03/20/15 22:38	1
Trifluorotoluene (Surr)	101		50 - 150					03/20/15 22:38	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.064	0.0057	ug/L		03/20/15 14:36	03/25/15 17:42	1
PCB-1221	ND		0.064	0.0079	ug/L		03/20/15 14:36	03/25/15 17:42	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW08-031615

Lab Sample ID: 580-48061-5

Date Collected: 03/16/15 08:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.064	0.0052	ug/L		03/20/15 14:36	03/25/15 17:42	1
PCB-1242	ND		0.064	0.0052	ug/L		03/20/15 14:36	03/25/15 17:42	1
PCB-1248	ND		0.064	0.0090	ug/L		03/20/15 14:36	03/25/15 17:42	1
PCB-1254	ND		0.064	0.0056	ug/L		03/20/15 14:36	03/25/15 17:42	1
PCB-1260	ND		0.064	0.0050	ug/L		03/20/15 14:36	03/25/15 17:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	101		38 - 121				03/20/15 14:36	03/25/15 17:42	1
Tetrachloro-m-xylene	77		26 - 124				03/20/15 14:36	03/25/15 17:42	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	140	J B * Z	150	22	ug/L		03/20/15 17:46	03/23/15 13:51	1
Motor Oil (>C24-C36)	ND		290	34	ug/L		03/20/15 17:46	03/23/15 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150				03/20/15 17:46	03/23/15 13:51	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.72		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:51	1
Barium	26	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:51	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:51	1
Chromium	1.4		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:51	1
Lead	1.2	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:51	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:33	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:51	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.59	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:58	1
Barium	20		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:58	1
Cadmium	0.065	J	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:58	1
Chromium	0.61		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:58	1
Lead	0.38		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:58	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:44	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:58	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.056	J	0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:46	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:14	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW09-031615

Lab Sample ID: 580-48061-6

Date Collected: 03/16/15 09:40

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0049	J	0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
2-Methylnaphthalene	ND		0.014	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Acenaphthene	ND		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Acenaphthylene	ND		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Anthracene	0.026	B	0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Benzo[a]anthracene	0.011		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Benzo[a]pyrene	0.0065	J	0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Benzo[b]fluoranthene	0.026		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Benzo[g,h,i]perylene	0.011		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Benzo[k]fluoranthene	0.0084	J *	0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Chrysene	0.020		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Dibenz(a,h)anthracene	ND		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Fluoranthene	0.016		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Fluorene	ND		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Indeno[1,2,3-cd]pyrene	0.013		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Naphthalene	0.015		0.011	0.0039	ug/L		03/19/15 14:53	03/28/15 19:41	1
Phenanthrene	0.0077	J B	0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Pyrene	0.018		0.011	0.0032	ug/L		03/19/15 14:53	03/28/15 19:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		64 - 150				03/19/15 14:53	03/28/15 19:41	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.6	0.63	ug/L		03/19/15 14:53	03/26/15 02:19	1
Butyl benzyl phthalate	0.18	J B	0.32	0.11	ug/L		03/19/15 14:53	03/26/15 02:19	1
Diethyl phthalate	ND		0.21	0.054	ug/L		03/19/15 14:53	03/26/15 02:19	1
Dimethyl phthalate	ND		0.21	0.054	ug/L		03/19/15 14:53	03/26/15 02:19	1
Di-n-butyl phthalate	ND		0.21	0.070	ug/L		03/19/15 14:53	03/26/15 02:19	1
Di-n-octyl phthalate	ND		0.21	0.097	ug/L		03/19/15 14:53	03/26/15 02:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	75		44 - 125				03/19/15 14:53	03/26/15 02:19	1
2-Fluorobiphenyl	67		50 - 120				03/19/15 14:53	03/26/15 02:19	1
2-Fluorophenol (Surr)	66		30 - 134				03/19/15 14:53	03/26/15 02:19	1
Nitrobenzene-d5 (Surr)	75		59 - 120				03/19/15 14:53	03/26/15 02:19	1
Phenol-d5 (Surr)	73		52 - 120				03/19/15 14:53	03/26/15 02:19	1
Terphenyl-d14 (Surr)	82		64 - 150				03/19/15 14:53	03/26/15 02:19	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 23:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150					03/20/15 23:11	1
Trifluorotoluene (Surr)	102		50 - 150					03/20/15 23:11	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.054	0.0049	ug/L		03/20/15 14:36	03/25/15 17:59	1
PCB-1221	ND		0.054	0.0068	ug/L		03/20/15 14:36	03/25/15 17:59	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW09-031615

Lab Sample ID: 580-48061-6

Date Collected: 03/16/15 09:40

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.054	0.0045	ug/L		03/20/15 14:36	03/25/15 17:59	1
PCB-1242	ND		0.054	0.0045	ug/L		03/20/15 14:36	03/25/15 17:59	1
PCB-1248	ND		0.054	0.0077	ug/L		03/20/15 14:36	03/25/15 17:59	1
PCB-1254	ND		0.054	0.0048	ug/L		03/20/15 14:36	03/25/15 17:59	1
PCB-1260	ND		0.054	0.0042	ug/L		03/20/15 14:36	03/25/15 17:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	98		38 - 121				03/20/15 14:36	03/25/15 17:59	1
Tetrachloro-m-xylene	78		26 - 124				03/20/15 14:36	03/25/15 17:59	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	100	J B *	160	24	ug/L		03/20/15 17:46	03/23/15 14:07	1
Motor Oil (>C24-C36)	ND		320	37	ug/L		03/20/15 17:46	03/23/15 14:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				03/20/15 17:46	03/23/15 14:07	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.2		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:54	1
Barium	26	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:54	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:54	1
Chromium	1.5		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:54	1
Lead	1.3	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:54	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:36	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:54	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.98	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:01	1
Barium	20		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 22:01	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:01	1
Chromium	0.64		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 22:01	1
Lead	0.41		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:01	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:46	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:01	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:48	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:17	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW10-031615

Lab Sample ID: 580-48061-7

Date Collected: 03/16/15 09:15

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
2-Methylnaphthalene	ND		0.014	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Acenaphthene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Acenaphthylene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Anthracene	0.0038	J B	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Benzo[a]anthracene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Benzo[a]pyrene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Benzo[b]fluoranthene	0.0040	J	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Benzo[g,h,i]perylene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Benzo[k]fluoranthene	ND	*	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Chrysene	0.0036	J	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Dibenz(a,h)anthracene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Fluoranthene	0.0052	J	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Fluorene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Indeno[1,2,3-cd]pyrene	ND		0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Naphthalene	ND		0.010	0.0038	ug/L		03/19/15 14:53	03/28/15 20:03	1
Phenanthrene	0.0073	J B	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Pyrene	0.0048	J	0.010	0.0031	ug/L		03/19/15 14:53	03/28/15 20:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	90		64 - 150				03/19/15 14:53	03/28/15 20:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.6	0.62	ug/L		03/19/15 14:53	03/26/15 19:15	1
Butyl benzyl phthalate	0.25	J B	0.31	0.10	ug/L		03/19/15 14:53	03/26/15 19:15	1
Diethyl phthalate	ND		0.21	0.052	ug/L		03/19/15 14:53	03/26/15 19:15	1
Dimethyl phthalate	ND		0.21	0.052	ug/L		03/19/15 14:53	03/26/15 19:15	1
Di-n-butyl phthalate	ND		0.21	0.068	ug/L		03/19/15 14:53	03/26/15 19:15	1
Di-n-octyl phthalate	ND		0.21	0.094	ug/L		03/19/15 14:53	03/26/15 19:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	86		44 - 125				03/19/15 14:53	03/26/15 19:15	1
2-Fluorobiphenyl	66		50 - 120				03/19/15 14:53	03/26/15 19:15	1
2-Fluorophenol (Surr)	67		30 - 134				03/19/15 14:53	03/26/15 19:15	1
Nitrobenzene-d5 (Surr)	82		59 - 120				03/19/15 14:53	03/26/15 19:15	1
Phenol-d5 (Surr)	74		52 - 120				03/19/15 14:53	03/26/15 19:15	1
Terphenyl-d14 (Surr)	93		64 - 150				03/19/15 14:53	03/26/15 19:15	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/20/15 23:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150					03/20/15 23:44	1
Trifluorotoluene (Surr)	101		50 - 150					03/20/15 23:44	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.052	0.0047	ug/L		03/20/15 14:36	03/25/15 18:16	1
PCB-1221	ND		0.052	0.0065	ug/L		03/20/15 14:36	03/25/15 18:16	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW10-031615

Lab Sample ID: 580-48061-7

Date Collected: 03/16/15 09:15

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.052	0.0043	ug/L		03/20/15 14:36	03/25/15 18:16	1
PCB-1242	ND		0.052	0.0043	ug/L		03/20/15 14:36	03/25/15 18:16	1
PCB-1248	ND		0.052	0.0074	ug/L		03/20/15 14:36	03/25/15 18:16	1
PCB-1254	ND		0.052	0.0046	ug/L		03/20/15 14:36	03/25/15 18:16	1
PCB-1260	ND		0.052	0.0041	ug/L		03/20/15 14:36	03/25/15 18:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	92		38 - 121				03/20/15 14:36	03/25/15 18:16	1
Tetrachloro-m-xylene	66		26 - 124				03/20/15 14:36	03/25/15 18:16	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	82	J B *	140	22	ug/L		03/20/15 17:46	03/23/15 14:23	1
Motor Oil (>C24-C36)	ND		280	33	ug/L		03/20/15 17:46	03/23/15 14:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150				03/20/15 17:46	03/23/15 14:23	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.30		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:56	1
Barium	27	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:56	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:56	1
Chromium	1.3		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:56	1
Lead	1.0	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:56	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:39	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:56	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.21	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:03	1
Barium	22		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 22:03	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:03	1
Chromium	0.63		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 22:03	1
Lead	0.39		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:03	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:49	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:03	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:51	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:19	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW11-031615

Lab Sample ID: 580-48061-8

Date Collected: 03/16/15 12:40

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
2-Methylnaphthalene	ND		0.014	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Acenaphthene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Acenaphthylene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Benzo[a]anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Benzo[a]pyrene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Benzo[b]fluoranthene	0.0036	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Benzo[g,h,i]perylene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Benzo[k]fluoranthene	ND	*	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Chrysene	0.0039	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Dibenz(a,h)anthracene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Fluoranthene	0.0062	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Fluorene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Indeno[1,2,3-cd]pyrene	ND		0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Naphthalene	ND		0.011	0.0040	ug/L		03/19/15 14:53	03/28/15 20:24	1
Phenanthrene	0.0058	J B	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Pyrene	0.0067	J	0.011	0.0033	ug/L		03/19/15 14:53	03/28/15 20:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		64 - 150				03/19/15 14:53	03/28/15 20:24	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	1.2	J *	1.7	0.65	ug/L		03/19/15 14:53	03/26/15 19:41	1
Butyl benzyl phthalate	0.32	J B	0.33	0.11	ug/L		03/19/15 14:53	03/26/15 19:41	1
Diethyl phthalate	ND		0.22	0.055	ug/L		03/19/15 14:53	03/26/15 19:41	1
Dimethyl phthalate	ND		0.22	0.055	ug/L		03/19/15 14:53	03/26/15 19:41	1
Di-n-butyl phthalate	0.12	J B	0.22	0.072	ug/L		03/19/15 14:53	03/26/15 19:41	1
Di-n-octyl phthalate	ND		0.22	0.10	ug/L		03/19/15 14:53	03/26/15 19:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	84		44 - 125				03/19/15 14:53	03/26/15 19:41	1
2-Fluorobiphenyl	73		50 - 120				03/19/15 14:53	03/26/15 19:41	1
2-Fluorophenol (Surr)	66		30 - 134				03/19/15 14:53	03/26/15 19:41	1
Nitrobenzene-d5 (Surr)	89		59 - 120				03/19/15 14:53	03/26/15 19:41	1
Phenol-d5 (Surr)	77		52 - 120				03/19/15 14:53	03/26/15 19:41	1
Terphenyl-d14 (Surr)	97		64 - 150				03/19/15 14:53	03/26/15 19:41	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/21/15 00:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150					03/21/15 00:17	1
Trifluorotoluene (Surr)	101		50 - 150					03/21/15 00:17	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.058	0.0053	ug/L		03/20/15 14:36	03/25/15 19:05	1
PCB-1221	ND		0.058	0.0072	ug/L		03/20/15 14:36	03/25/15 19:05	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW11-031615

Lab Sample ID: 580-48061-8

Date Collected: 03/16/15 12:40

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.058	0.0048	ug/L		03/20/15 14:36	03/25/15 19:05	1
PCB-1242	ND		0.058	0.0048	ug/L		03/20/15 14:36	03/25/15 19:05	1
PCB-1248	ND		0.058	0.0083	ug/L		03/20/15 14:36	03/25/15 19:05	1
PCB-1254	ND		0.058	0.0051	ug/L		03/20/15 14:36	03/25/15 19:05	1
PCB-1260	ND		0.058	0.0046	ug/L		03/20/15 14:36	03/25/15 19:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	103		38 - 121	03/20/15 14:36	03/25/15 19:05	1
Tetrachloro-m-xylene	76		26 - 124	03/20/15 14:36	03/25/15 19:05	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	87	J B *	130	19	ug/L		03/20/15 17:46	03/23/15 14:39	1
Motor Oil (>C24-C36)	ND		250	30	ug/L		03/20/15 17:46	03/23/15 14:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	03/20/15 17:46	03/23/15 14:39	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.43		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:24	1
Barium	27	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:24	1
Cadmium	0.070	J	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:24	1
Chromium	1.9		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:24	1
Lead	0.94	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:24	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 14:59	1
Silver	0.090	J	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:24	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.16	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:06	1
Barium	17		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 22:06	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:06	1
Chromium	0.25	J	0.50	0.20	ug/L		03/23/15 11:48	03/25/15 22:06	1
Lead	0.11		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:06	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:51	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:06	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:53	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:21	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW12-031615

Lab Sample ID: 580-48061-9

Date Collected: 03/16/15 12:55

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
2-Methylnaphthalene	0.012	J	0.016	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Acenaphthene	0.0037	J	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Acenaphthylene	0.0051	J	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Anthracene	0.0037	J B	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Benzo[a]anthracene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Benzo[a]pyrene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Benzo[b]fluoranthene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Benzo[g,h,i]perylene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Benzo[k]fluoranthene	ND	*	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Chrysene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Dibenz(a,h)anthracene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Fluoranthene	0.0050	J	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Fluorene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Indeno[1,2,3-cd]pyrene	ND		0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Naphthalene	0.025		0.012	0.0045	ug/L		03/19/15 14:53	03/28/15 20:46	1
Phenanthrene	0.0099	J B	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Pyrene	0.0047	J	0.012	0.0037	ug/L		03/19/15 14:53	03/28/15 20:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	102		64 - 150				03/19/15 14:53	03/28/15 20:46	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND	*	1.9	0.73	ug/L		03/19/15 14:53	03/26/15 20:06	1
Butyl benzyl phthalate	0.24	J B	0.37	0.12	ug/L		03/19/15 14:53	03/26/15 20:06	1
Diethyl phthalate	ND		0.25	0.062	ug/L		03/19/15 14:53	03/26/15 20:06	1
Dimethyl phthalate	ND		0.25	0.062	ug/L		03/19/15 14:53	03/26/15 20:06	1
Di-n-butyl phthalate	0.092	J B	0.25	0.081	ug/L		03/19/15 14:53	03/26/15 20:06	1
Di-n-octyl phthalate	ND		0.25	0.11	ug/L		03/19/15 14:53	03/26/15 20:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	79		44 - 125				03/19/15 14:53	03/26/15 20:06	1
2-Fluorobiphenyl	72		50 - 120				03/19/15 14:53	03/26/15 20:06	1
2-Fluorophenol (Surr)	64		30 - 134				03/19/15 14:53	03/26/15 20:06	1
Nitrobenzene-d5 (Surr)	84		59 - 120				03/19/15 14:53	03/26/15 20:06	1
Phenol-d5 (Surr)	70		52 - 120				03/19/15 14:53	03/26/15 20:06	1
Terphenyl-d14 (Surr)	91		64 - 150				03/19/15 14:53	03/26/15 20:06	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100	27	ug/L			03/21/15 01:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					03/21/15 01:23	1
Trifluorotoluene (Surr)	102		50 - 150					03/21/15 01:23	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.0054	ug/L		03/20/15 14:36	03/25/15 19:22	1
PCB-1221	ND		0.060	0.0075	ug/L		03/20/15 14:36	03/25/15 19:22	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW12-031615

Lab Sample ID: 580-48061-9

Date Collected: 03/16/15 12:55

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	ND		0.060	0.0049	ug/L		03/20/15 14:36	03/25/15 19:22	1
PCB-1242	ND		0.060	0.0049	ug/L		03/20/15 14:36	03/25/15 19:22	1
PCB-1248	ND		0.060	0.0085	ug/L		03/20/15 14:36	03/25/15 19:22	1
PCB-1254	ND		0.060	0.0053	ug/L		03/20/15 14:36	03/25/15 19:22	1
PCB-1260	ND		0.060	0.0047	ug/L		03/20/15 14:36	03/25/15 19:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	104		38 - 121	03/20/15 14:36	03/25/15 19:22	1
Tetrachloro-m-xylene	77		26 - 124	03/20/15 14:36	03/25/15 19:22	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	110	J B	130	20	ug/L		03/24/15 21:40	03/25/15 12:44	1
Motor Oil (>C24-C36)	ND		260	30	ug/L		03/24/15 21:40	03/25/15 12:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150	03/24/15 21:40	03/25/15 12:44	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.29		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:59	1
Barium	24	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:59	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:59	1
Chromium	1.4		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:59	1
Lead	0.72	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:59	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:41	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:59	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.15	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:08	1
Barium	16		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 22:08	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:08	1
Chromium	0.36	J	0.50	0.20	ug/L		03/23/15 11:48	03/25/15 22:08	1
Lead	0.093	J	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:08	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:54	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:08	1

Method: 7470A - 7470A - Mercury (CVAA) - Aqueous Matrix

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:55	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:24	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW13-031615

Lab Sample ID: 580-48061-10

Date Collected: 03/16/15 13:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
2-Methylnaphthalene	0.0038	J	0.015	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Acenaphthene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Acenaphthylene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Anthracene	0.027	B	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Benzo[a]anthracene	0.035		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Benzo[a]pyrene	0.024		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Benzo[b]fluoranthene	0.069		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Benzo[g,h,i]perylene	0.039		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Benzo[k]fluoranthene	0.020	*	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Chrysene	0.070		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Dibenz(a,h)anthracene	0.0081	J	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Fluoranthene	0.11		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Fluorene	ND		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Indeno[1,2,3-cd]pyrene	0.042		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Naphthalene	0.011		0.011	0.0041	ug/L		03/19/15 14:53	03/28/15 21:08	1
Phenanthrene	0.045	B	0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1
Pyrene	0.10		0.011	0.0034	ug/L		03/19/15 14:53	03/28/15 21:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	77		64 - 150	03/19/15 14:53	03/28/15 21:08	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.0097	J	0.011	0.0039	ug/L		03/23/15 10:54	04/01/15 15:55	1
2-Methylnaphthalene	ND		0.014	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
1-Methylnaphthalene	0.0044	J	0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Acenaphthylene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Acenaphthene	0.11		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Fluorene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Phenanthrene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Anthracene	0.015		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Fluoranthene	0.0035	J	0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Pyrene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Benzo[a]anthracene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Chrysene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Benzo[a]pyrene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Indeno[1,2,3-cd]pyrene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Dibenz(a,h)anthracene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Benzo[g,h,i]perylene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Benzo[b]fluoranthene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1
Benzo[k]fluoranthene	ND		0.011	0.0033	ug/L		03/23/15 10:54	04/01/15 15:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		64 - 150	03/23/15 10:54	04/01/15 15:55	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.0		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 23:01	1
Barium	39	B	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 23:01	1

TestAmerica Seattle

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW13-031615

Lab Sample ID: 580-48061-10

Date Collected: 03/16/15 13:30

Matrix: Water

Date Received: 03/17/15 15:10

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.19		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 23:01	1
Chromium	4.9		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 23:01	1
Lead	27	B	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 23:01	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 15:44	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 23:01	1

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.27	B	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:11	1
Barium	6.5		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 22:11	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:11	1
Chromium	ND		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 22:11	1
Lead	0.24		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:11	1
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:56	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 22:11	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.19	J	0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:58	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 15:26	1

Client Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: TB #361

Lab Sample ID: 580-48061-11

Date Collected: 03/16/15 00:00

Matrix: Water

Date Received: 03/17/15 15:10

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	28	J B	100	27	ug/L			03/20/15 14:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150					03/20/15 14:57	1
Trifluorotoluene (Surr)	114		50 - 150					03/20/15 14:57	1

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-184781/1-A

Matrix: Water

Analysis Batch: 185088

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184781

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1.5	0.59	ug/L		03/19/15 14:52	03/24/15 12:17	1
Butyl benzyl phthalate	0.236	J	0.30	0.10	ug/L		03/19/15 14:52	03/24/15 12:17	1
Diethyl phthalate	ND		0.20	0.050	ug/L		03/19/15 14:52	03/24/15 12:17	1
Dimethyl phthalate	ND		0.20	0.050	ug/L		03/19/15 14:52	03/24/15 12:17	1
Di-n-butyl phthalate	0.132	J	0.20	0.065	ug/L		03/19/15 14:52	03/24/15 12:17	1
Di-n-octyl phthalate	ND		0.20	0.090	ug/L		03/19/15 14:52	03/24/15 12:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	57		44 - 125	03/19/15 14:52	03/24/15 12:17	1
2-Fluorobiphenyl	58		50 - 120	03/19/15 14:52	03/24/15 12:17	1
2-Fluorophenol (Surr)	55		30 - 134	03/19/15 14:52	03/24/15 12:17	1
Nitrobenzene-d5 (Surr)	61		59 - 120	03/19/15 14:52	03/24/15 12:17	1
Phenol-d5 (Surr)	57		52 - 120	03/19/15 14:52	03/24/15 12:17	1
Terphenyl-d14 (Surr)	85		64 - 150	03/19/15 14:52	03/24/15 12:17	1

Lab Sample ID: LCS 580-184781/2-A

Matrix: Water

Analysis Batch: 185088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184781

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	1.00	0.961	J	ug/L		96	70 - 185
Butyl benzyl phthalate	1.00	1.15		ug/L		115	60 - 167
Diethyl phthalate	1.00	0.783		ug/L		78	60 - 150
Dimethyl phthalate	1.00	0.645		ug/L		65	65 - 155
Di-n-butyl phthalate	1.00	0.776		ug/L		78	55 - 167
Di-n-octyl phthalate	1.00	0.758		ug/L		76	55 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	19	X	44 - 125
2-Fluorobiphenyl	59		50 - 120
2-Fluorophenol (Surr)	22	X	30 - 134
Nitrobenzene-d5 (Surr)	61		59 - 120
Phenol-d5 (Surr)	37	X	52 - 120
Terphenyl-d14 (Surr)	79		64 - 150

Lab Sample ID: LCSD 580-184781/3-A

Matrix: Water

Analysis Batch: 185088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184781

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	1.00	1.75	*	ug/L		175	70 - 185	58	20
Butyl benzyl phthalate	1.00	1.05		ug/L		105	60 - 167	9	20
Diethyl phthalate	1.00	0.783		ug/L		78	60 - 150	0	20
Dimethyl phthalate	1.00	0.671		ug/L		67	65 - 155	4	20
Di-n-butyl phthalate	1.00	0.725		ug/L		72	55 - 167	7	20
Di-n-octyl phthalate	1.00	0.669		ug/L		67	55 - 150	12	20

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-184781/3-A

Matrix: Water

Analysis Batch: 185088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184781

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol (Surr)	54		44 - 125
2-Fluorobiphenyl	56		50 - 120
2-Fluorophenol (Surr)	43		30 - 134
Nitrobenzene-d5 (Surr)	61		59 - 120
Phenol-d5 (Surr)	56		52 - 120
Terphenyl-d14 (Surr)	72		64 - 150

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-184781/1-A

Matrix: Water

Analysis Batch: 185437

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184781

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.013	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
1-Methylnaphthalene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Acenaphthylene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Acenaphthene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Anthracene	0.00428	J	0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Benzo[a]anthracene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Chrysene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Fluoranthene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Benzo[a]pyrene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Fluorene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Indeno[1,2,3-cd]pyrene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Dibenz(a,h)anthracene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Naphthalene	ND		0.010	0.0036	ug/L		03/19/15 14:52	03/28/15 16:47	1
Benzo[g,h,i]perylene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Phenanthrene	0.00475	J	0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Benzo[b]fluoranthene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Pyrene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Benzo[k]fluoranthene	ND		0.010	0.0030	ug/L		03/19/15 14:52	03/28/15 16:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		64 - 150				03/19/15 14:52	03/28/15 16:47	1

Lab Sample ID: LCS 580-184781/2-A

Matrix: Water

Analysis Batch: 185437

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184781

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthylene	1.00	0.650		ug/L		65	62 - 125
Acenaphthene	1.00	0.725		ug/L		73	63 - 125
Anthracene	1.00	0.691		ug/L		69	50 - 125
Benzo[a]anthracene	1.00	0.775		ug/L		78	65 - 125
Chrysene	1.00	0.802		ug/L		80	70 - 125
Fluoranthene	1.00	0.807		ug/L		81	70 - 145

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-184781/2-A

Matrix: Water

Analysis Batch: 185437

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184781

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]pyrene	1.00	0.545		ug/L		55	45 - 125
Fluorene	1.00	0.801		ug/L		80	69 - 125
Indeno[1,2,3-cd]pyrene	1.00	0.810		ug/L		81	70 - 136
Dibenz(a,h)anthracene	1.00	0.779		ug/L		78	69 - 154
Naphthalene	1.00	0.727		ug/L		73	56 - 125
Benzo[g,h,i]perylene	1.00	0.718		ug/L		72	65 - 153
Phenanthrene	1.00	0.742		ug/L		74	70 - 125
Benzo[b]fluoranthene	1.00	0.727		ug/L		73	70 - 129
Pyrene	1.00	0.812		ug/L		81	70 - 133
Benzo[k]fluoranthene	1.00	0.678	*	ug/L		68	70 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	90		64 - 150

Lab Sample ID: LCSD 580-184781/3-A

Matrix: Water

Analysis Batch: 185437

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184781

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthylene	1.00	0.659		ug/L		66	62 - 125	1	20
Acenaphthene	1.00	0.755		ug/L		76	63 - 125	4	20
Anthracene	1.00	0.638		ug/L		64	50 - 125	8	20
Benzo[a]anthracene	1.00	0.744		ug/L		74	65 - 125	4	20
Chrysene	1.00	0.764		ug/L		76	70 - 125	5	20
Fluoranthene	1.00	0.788		ug/L		79	70 - 145	2	20
Benzo[a]pyrene	1.00	0.517		ug/L		52	45 - 125	5	20
Fluorene	1.00	0.700		ug/L		70	69 - 125	14	20
Indeno[1,2,3-cd]pyrene	1.00	0.769		ug/L		77	70 - 136	5	20
Dibenz(a,h)anthracene	1.00	0.733		ug/L		73	69 - 154	6	20
Naphthalene	1.00	0.704		ug/L		70	56 - 125	3	20
Benzo[g,h,i]perylene	1.00	0.700		ug/L		70	65 - 153	3	20
Phenanthrene	1.00	0.750		ug/L		75	70 - 125	1	20
Benzo[b]fluoranthene	1.00	0.723		ug/L		72	70 - 129	1	20
Pyrene	1.00	0.787		ug/L		79	70 - 133	3	20
Benzo[k]fluoranthene	1.00	0.650	*	ug/L		65	70 - 123	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	81		64 - 150

Lab Sample ID: MB 580-184973/1-A

Matrix: Water

Analysis Batch: 185761

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184973

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.013	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
1-Methylnaphthalene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Acenaphthylene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Acenaphthene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-184973/1-A

Matrix: Water

Analysis Batch: 185761

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184973

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Benzo[a]anthracene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Chrysene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Fluoranthene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Benzo[a]pyrene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Fluorene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Indeno[1,2,3-cd]pyrene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Dibenz(a,h)anthracene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Naphthalene	ND		0.010	0.0036	ug/L		03/23/15 10:54	04/01/15 14:07	1
Benzo[g,h,i]perylene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Phenanthrene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Benzo[b]fluoranthene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Pyrene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1
Benzo[k]fluoranthene	ND		0.010	0.0030	ug/L		03/23/15 10:54	04/01/15 14:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	77		64 - 150	03/23/15 10:54	04/01/15 14:07	1

Lab Sample ID: LCS 580-184973/2-A

Matrix: Water

Analysis Batch: 185761

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184973

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthylene	1.00	0.724		ug/L		72	62 - 125
Acenaphthene	1.00	0.780		ug/L		78	63 - 125
Anthracene	1.00	0.813		ug/L		81	50 - 125
Benzo[a]anthracene	1.00	0.859		ug/L		86	65 - 125
Chrysene	1.00	0.853		ug/L		85	70 - 125
Fluoranthene	1.00	0.880		ug/L		88	70 - 145
Benzo[a]pyrene	1.00	0.664		ug/L		66	45 - 125
Fluorene	1.00	0.735		ug/L		74	69 - 125
Indeno[1,2,3-cd]pyrene	1.00	0.854		ug/L		85	70 - 136
Dibenz(a,h)anthracene	1.00	0.788		ug/L		79	69 - 154
Naphthalene	1.00	0.793		ug/L		79	56 - 125
Benzo[g,h,i]perylene	1.00	0.748		ug/L		75	65 - 153
Phenanthrene	1.00	0.809		ug/L		81	70 - 125
Benzo[b]fluoranthene	1.00	0.828		ug/L		83	70 - 129
Pyrene	1.00	0.896		ug/L		90	70 - 133
Benzo[k]fluoranthene	1.00	0.709		ug/L		71	70 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	75		64 - 150

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-184973/3-A

Matrix: Water

Analysis Batch: 185761

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184973

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthylene	1.00	0.803		ug/L		80	62 - 125	10	20
Acenaphthene	1.00	0.875		ug/L		88	63 - 125	12	20
Anthracene	1.00	0.874		ug/L		87	50 - 125	7	20
Benzo[a]anthracene	1.00	0.954		ug/L		95	65 - 125	10	20
Chrysene	1.00	0.951		ug/L		95	70 - 125	11	20
Fluoranthene	1.00	0.988		ug/L		99	70 - 145	11	20
Benzo[a]pyrene	1.00	0.730		ug/L		73	45 - 125	9	20
Fluorene	1.00	0.862		ug/L		86	69 - 125	16	20
Indeno[1,2,3-cd]pyrene	1.00	0.914		ug/L		91	70 - 136	7	20
Dibenz(a,h)anthracene	1.00	0.906		ug/L		91	69 - 154	14	20
Naphthalene	1.00	0.870		ug/L		87	56 - 125	9	20
Benzo[g,h,i]perylene	1.00	0.859		ug/L		86	65 - 153	14	20
Phenanthrene	1.00	0.905		ug/L		90	70 - 125	11	20
Benzo[b]fluoranthene	1.00	0.942		ug/L		94	70 - 129	13	20
Pyrene	1.00	1.03		ug/L		103	70 - 133	13	20
Benzo[k]fluoranthene	1.00	0.807		ug/L		81	70 - 123	13	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	84		64 - 150

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-184878/4

Matrix: Water

Analysis Batch: 184878

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	30.8	J	100	27	ug/L			03/20/15 13:18	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150					03/20/15 13:18	1
Trifluorotoluene (Surr)	111		50 - 150					03/20/15 13:18	1

Lab Sample ID: LCS 580-184878/5

Matrix: Water

Analysis Batch: 184878

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

			Spike	LCS	LCS	%Rec.					
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline			1000	832		ug/L	-	83	79 - 110		
Surrogate	LCS	LCS	Limits								
	%Recovery	Qualifier									
4-Bromofluorobenzene (Surr)	101		50 - 150								
Trifluorotoluene (Surr)	99		50 - 150								

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-184878/6

Matrix: Water

Analysis Batch: 184878

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1000	813		ug/L		81	79 - 110	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	96		50 - 150

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-184891/1-A

Matrix: Water

Analysis Batch: 185160

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.050	0.0045	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1221	ND		0.050	0.0062	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1232	ND		0.050	0.0041	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1242	ND		0.050	0.0041	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1248	ND		0.050	0.0071	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1254	ND		0.050	0.0044	ug/L		03/20/15 14:36	03/25/15 15:46	1
PCB-1260	ND		0.050	0.0039	ug/L		03/20/15 14:36	03/25/15 15:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	103		38 - 121	03/20/15 14:36	03/25/15 15:46	1
Tetrachloro-m-xylene	72		26 - 124	03/20/15 14:36	03/25/15 15:46	1

Lab Sample ID: LCS 580-184891/2-A

Matrix: Water

Analysis Batch: 185160

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.100	0.0862		ug/L		86	25 - 145
PCB-1260	0.100	0.0974		ug/L		97	30 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	113		38 - 121
Tetrachloro-m-xylene	78		26 - 124

Lab Sample ID: LCSD 580-184891/3-A

Matrix: Water

Analysis Batch: 185160

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184891

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	0.100	0.0919		ug/L		92	25 - 145	6	27
PCB-1260	0.100	0.0979		ug/L		98	30 - 145	1	22

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 580-184891/3-A

Matrix: Water

Analysis Batch: 185160

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184891

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
DCB Decachlorobiphenyl	113		38 - 121
Tetrachloro-m-xylene	80		26 - 124

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-184908/1-B

Matrix: Water

Analysis Batch: 184943

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 184908

	MB	MB								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
#2 Diesel (C10-C24)	47.7	J	130	19	ug/L		03/20/15 17:46	03/23/15 10:06	1	
Motor Oil (>C24-C36)	ND		250	29	ug/L		03/20/15 17:46	03/23/15 10:06	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
o-Terphenyl	73		50 - 150				03/20/15 17:46	03/23/15 10:06	1	

Lab Sample ID: LCS 580-184908/2-A

Matrix: Water

Analysis Batch: 184943

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 184908

		Spike	LCS	LCS					%Rec.	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)		4000	4110		ug/L		103	59 - 120		
Motor Oil (>C24-C36)		4020	4260		ug/L		106	71 - 140		
Surrogate	LCS	LCS								
Surrogate	%Recovery	Qualifier	Limits							
o-Terphenyl	76		50 - 150							

Lab Sample ID: LCSD 580-184908/3-A

Matrix: Water

Analysis Batch: 184943

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 184908

		Spike	LCSD	LCSD					%Rec.	RPD
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)		4000	2970	*	ug/L		74	59 - 120	32	27
Motor Oil (>C24-C36)		4020	3660		ug/L		91	71 - 140	15	27
Surrogate	LCSD	LCSD								
Surrogate	%Recovery	Qualifier	Limits							
o-Terphenyl	77		50 - 150							

Lab Sample ID: MB 580-185136/1-A

Matrix: Water

Analysis Batch: 185187

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 185136

	MB	MB								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
#2 Diesel (C10-C24)	30.5	J	130	19	ug/L		03/24/15 21:40	03/25/15 11:49	1	
Motor Oil (>C24-C36)	ND		250	29	ug/L		03/24/15 21:40	03/25/15 11:49	1	

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-185136/1-A

Matrix: Water

Analysis Batch: 185187

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 185136

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	77		50 - 150	03/24/15 21:40	03/25/15 11:49	1

Lab Sample ID: LCS 580-185136/2-A

Matrix: Water

Analysis Batch: 185187

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 185136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	4000	3970		ug/L		99	59 - 120
Motor Oil (>C24-C36)	4020	4380		ug/L		109	71 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	87		50 - 150				

Lab Sample ID: LCSD 580-185136/3-A

Matrix: Water

Analysis Batch: 185187

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 185136

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4000	3650		ug/L		91	59 - 120	9	27
Motor Oil (>C24-C36)	4020	3930		ug/L		98	71 - 140	11	27
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	82		50 - 150						

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 440-244405/1-A

Matrix: Water

Analysis Batch: 245175

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 244405

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0910	J	0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:29	1
Barium	ND		0.20	0.10	ug/L		03/23/15 11:48	03/25/15 21:29	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:29	1
Chromium	ND		0.50	0.20	ug/L		03/23/15 11:48	03/25/15 21:29	1
Lead	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:29	1
Silver	ND		0.10	0.050	ug/L		03/23/15 11:48	03/25/15 21:29	1

Lab Sample ID: MB 440-244405/1-A

Matrix: Water

Analysis Batch: 245274

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 244405

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.50	0.30	ug/L		03/23/15 11:48	03/26/15 13:11	1

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-244405/2-A

Matrix: Water

Analysis Batch: 245175

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 244405

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	80.3		ug/L		100	80 - 120
Barium	80.0	79.7		ug/L		100	80 - 120
Cadmium	80.0	79.1		ug/L		99	80 - 120
Chromium	80.0	77.3		ug/L		97	80 - 120
Lead	80.0	80.6		ug/L		101	80 - 120
Silver	80.0	79.3		ug/L		99	80 - 120

Lab Sample ID: LCS 440-244405/2-A

Matrix: Water

Analysis Batch: 245274

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 244405

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	80.0	79.9		ug/L		100	80 - 120

Lab Sample ID: MB 440-244430/1-A

Matrix: Water

Analysis Batch: 245175

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:19	1
Barium	0.160	J	0.20	0.10	ug/L		03/23/15 13:10	03/25/15 22:19	1
Cadmium	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:19	1
Chromium	ND		0.50	0.20	ug/L		03/23/15 13:10	03/25/15 22:19	1
Lead	0.0600	J	0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:19	1
Silver	ND		0.10	0.050	ug/L		03/23/15 13:10	03/25/15 22:19	1

Lab Sample ID: MB 440-244430/1-A

Matrix: Water

Analysis Batch: 245634

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.50	0.30	ug/L		03/23/15 13:10	03/26/15 14:54	1

Lab Sample ID: LCS 440-244430/2-A

Matrix: Water

Analysis Batch: 245175

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	80.0	75.6		ug/L		94	80 - 120
Barium	80.0	74.8		ug/L		94	80 - 120
Cadmium	80.0	74.6		ug/L		93	80 - 120
Chromium	80.0	73.1		ug/L		91	80 - 120
Lead	80.0	76.6		ug/L		96	80 - 120
Silver	80.0	73.6		ug/L		92	80 - 120

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-244430/2-A

Matrix: Water

Analysis Batch: 245634

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	80.0	75.1		ug/L		94	80 - 120

Lab Sample ID: 580-48061-8 MS

Matrix: Water

Analysis Batch: 245175

Client Sample ID: SW11-031615

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.43		80.0	75.3		ug/L		94	75 - 125
Barium	27	B	80.0	104		ug/L		96	75 - 125
Cadmium	0.070	J	80.0	75.4		ug/L		94	75 - 125
Chromium	1.9		80.0	74.2		ug/L		90	75 - 125
Lead	0.94	B	80.0	78.2		ug/L		97	75 - 125
Silver	0.090	J	80.0	75.4		ug/L		94	75 - 125

Lab Sample ID: 580-48061-8 MS

Matrix: Water

Analysis Batch: 245634

Client Sample ID: SW11-031615

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND		80.0	73.2		ug/L		92	75 - 125

Lab Sample ID: 580-48061-8 MSD

Matrix: Water

Analysis Batch: 245175

Client Sample ID: SW11-031615

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.43		80.0	76.5		ug/L		95	75 - 125	2	20
Barium	27	B	80.0	103		ug/L		95	75 - 125	0	20
Cadmium	0.070	J	80.0	75.4		ug/L		94	75 - 125	0	20
Chromium	1.9		80.0	75.0		ug/L		91	75 - 125	1	20
Lead	0.94	B	80.0	78.5		ug/L		97	75 - 125	0	20
Silver	0.090	J	80.0	75.6		ug/L		94	75 - 125	0	20

Lab Sample ID: 580-48061-8 MSD

Matrix: Water

Analysis Batch: 245634

Client Sample ID: SW11-031615

Prep Type: Total Recoverable

Prep Batch: 244430

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND		80.0	74.0		ug/L		92	75 - 125	1	20

Lab Sample ID: 580-48061-1 MS

Matrix: Water

Analysis Batch: 245175

Client Sample ID: SW04-031615

Prep Type: Dissolved

Prep Batch: 244405

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.39	B	80.0	79.6		ug/L		99	75 - 125
Barium	16		80.0	94.7		ug/L		98	75 - 125
Cadmium	0.071	J	80.0	77.1		ug/L		96	75 - 125
Chromium	0.34	J	80.0	76.0		ug/L		95	75 - 125

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-48061-1 MS

Matrix: Water

Analysis Batch: 245175

Client Sample ID: SW04-031615

Prep Type: Dissolved

Prep Batch: 244405

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.20		80.0	80.6		ug/L		100	75 - 125
Silver	0.099	J	80.0	76.0		ug/L		95	75 - 125

Lab Sample ID: 580-48061-1 MS

Matrix: Water

Analysis Batch: 245274

Client Sample ID: SW04-031615

Prep Type: Dissolved

Prep Batch: 244405

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND		80.0	76.5		ug/L		96	75 - 125

Lab Sample ID: 580-48061-1 MSD

Matrix: Water

Analysis Batch: 245175

Client Sample ID: SW04-031615

Prep Type: Dissolved

Prep Batch: 244405

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.39	B	80.0	78.4		ug/L		98	75 - 125	1	20
Barium	16		80.0	94.7		ug/L		98	75 - 125	0	20
Cadmium	0.071	J	80.0	77.3		ug/L		97	75 - 125	0	20
Chromium	0.34	J	80.0	74.6		ug/L		93	75 - 125	2	20
Lead	0.20		80.0	79.1		ug/L		99	75 - 125	2	20
Silver	0.099	J	80.0	75.8		ug/L		95	75 - 125	0	20

Lab Sample ID: 580-48061-1 MSD

Matrix: Water

Analysis Batch: 245274

Client Sample ID: SW04-031615

Prep Type: Dissolved

Prep Batch: 244405

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND		80.0	78.2		ug/L		98	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-185530/24-A

Matrix: Water

Analysis Batch: 185583

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 185530

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.041	ug/L		03/30/15 12:22	03/30/15 14:17	1

Lab Sample ID: LCS 580-185530/25-A

Matrix: Water

Analysis Batch: 185583

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 185530

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.00	1.91		ug/L		96	80 - 120

TestAmerica Seattle

QC Sample Results

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 580-185530/26-A

Matrix: Water

Analysis Batch: 185583

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 185530

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			2.00	1.94		ug/L		97	80 - 120	1	20

Lab Sample ID: 580-48061-1 MS

Matrix: Water

Analysis Batch: 185583

Client Sample ID: SW04-031615

Prep Type: Total/NA

Prep Batch: 185530

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		2.00	2.18		ug/L		109	80 - 120		

Lab Sample ID: 580-48061-1 MSD

Matrix: Water

Analysis Batch: 185583

Client Sample ID: SW04-031615

Prep Type: Total/NA

Prep Batch: 185530

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		2.00	1.93		ug/L		97	80 - 120	12	20

Lab Sample ID: 580-48061-1 DU

Matrix: Water

Analysis Batch: 185583

Client Sample ID: SW04-031615

Prep Type: Total/NA

Prep Batch: 185530

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		ug/L				NC	20

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW04-031615

Date Collected: 03/16/15 10:30

Date Received: 03/17/15 15:10

Lab Sample ID: 580-48061-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185088	03/24/15 21:59	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 17:52	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 19:21	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 16:36	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 12:30	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 21:34	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:16	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:33	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:09	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:00	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:24	FCW	TAL SEA

Client Sample ID: SW05-031615

Date Collected: 03/16/15 10:50

Date Received: 03/17/15 15:10

Lab Sample ID: 580-48061-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185227	03/26/15 00:35	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 18:14	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 19:54	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 16:52	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 13:03	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 21:43	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:26	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:38	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW05-031615

Lab Sample ID: 580-48061-2

Date Collected: 03/16/15 10:50

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:26	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:02	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:34	FCW	TAL SEA

Client Sample ID: SW06-031615

Lab Sample ID: 580-48061-3

Date Collected: 03/16/15 11:50

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185227	03/26/15 01:01	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 18:36	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 20:27	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 17:09	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 13:19	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 21:48	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:39	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:41	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:28	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:05	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:36	FCW	TAL SEA

Client Sample ID: SW07-031615

Lab Sample ID: 580-48061-4

Date Collected: 03/16/15 12:20

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185227	03/26/15 01:27	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 18:58	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 22:05	TL1	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW07-031615

Lab Sample ID: 580-48061-4

Date Collected: 03/16/15 12:20

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 17:26	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 13:35	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 21:51	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:41	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:49	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:31	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:07	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:39	FCW	TAL SEA

Client Sample ID: SW08-031615

Lab Sample ID: 580-48061-5

Date Collected: 03/16/15 08:30

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185227	03/26/15 01:53	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 19:19	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 22:38	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 17:42	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 13:51	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 21:58	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:44	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:51	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:33	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:14	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:46	FCW	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW09-031615

Lab Sample ID: 580-48061-6

Date Collected: 03/16/15 09:40

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185227	03/26/15 02:19	ERB	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 19:41	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 23:11	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 17:59	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 14:07	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 22:01	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:46	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:54	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:36	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:17	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:48	FCW	TAL SEA

Client Sample ID: SW10-031615

Lab Sample ID: 580-48061-7

Date Collected: 03/16/15 09:15

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185300	03/26/15 19:15	AHP	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 20:03	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 23:44	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 18:16	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 14:23	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 22:03	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:49	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:56	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW10-031615

Lab Sample ID: 580-48061-7

Date Collected: 03/16/15 09:15

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:39	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:19	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:51	FCW	TAL SEA

Client Sample ID: SW11-031615

Lab Sample ID: 580-48061-8

Date Collected: 03/16/15 12:40

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185300	03/26/15 19:41	AHP	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 20:24	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/21/15 00:17	TL1	TAL SEA
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 19:05	ALC	TAL SEA
Total/NA	Prep	3510C			184908	03/20/15 17:46	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	184943	03/23/15 14:39	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 22:06	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:51	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:24	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 14:59	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:21	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:53	FCW	TAL SEA

Client Sample ID: SW12-031615

Lab Sample ID: 580-48061-9

Date Collected: 03/16/15 12:55

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D		1	185300	03/26/15 20:06	AHP	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 20:46	AHP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	184878	03/21/15 01:23	TL1	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: SW12-031615

Lab Sample ID: 580-48061-9

Date Collected: 03/16/15 12:55

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			184891	03/20/15 14:36	RBL	TAL SEA
Total/NA	Analysis	8082A		1	185160	03/25/15 19:22	ALC	TAL SEA
Total/NA	Prep	3510C			185136	03/24/15 21:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	185187	03/25/15 12:44	EKK	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 22:08	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:54	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 22:59	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:41	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:24	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:55	FCW	TAL SEA

Client Sample ID: SW13-031615

Lab Sample ID: 580-48061-10

Date Collected: 03/16/15 13:30

Matrix: Water

Date Received: 03/17/15 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3520C			184973	03/23/15 10:54		TAL SEA
Dissolved	Analysis	8270D SIM		1	185761	04/01/15 15:55	AHP	TAL SEA
Total/NA	Prep	3520C			184781	03/19/15 14:53		TAL SEA
Total/NA	Analysis	8270D SIM		1	185437	03/28/15 21:08	AHP	TAL SEA
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245175	03/25/15 22:11	RC	TAL IRV
Dissolved	Prep	3005A			244405	03/23/15 11:48	ND	TAL IRV
Dissolved	Analysis	6020		1	245274	03/26/15 13:56	YS	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245175	03/25/15 23:01	RC	TAL IRV
Total Recoverable	Prep	3005A			244430	03/23/15 13:10	APS	TAL IRV
Total Recoverable	Analysis	6020		1	245634	03/26/15 15:44	NH	TAL IRV
Dissolved	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Dissolved	Analysis	7470A		1	185583	03/30/15 15:26	FCW	TAL SEA
Total/NA	Prep	7470A			185530	03/30/15 12:22	PAB	TAL SEA
Total/NA	Analysis	7470A		1	185583	03/30/15 14:58	FCW	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Client Sample ID: TB #361
Date Collected: 03/16/15 00:00
Date Received: 03/17/15 15:10

Lab Sample ID: 580-48061-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	184878	03/20/15 14:57	TL1	TAL SEA

Laboratory References:
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Laboratory: TestAmerica Seattle

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	WA100007	11-06-15

Laboratory: TestAmerica Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	4005	01-29-16

Analysis Method	Prep Method	Matrix	Analyte
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Sample Summary

Client: Integral Consulting Inc
Project/Site: BNSF Willbridge Yard

TestAmerica Job ID: 580-48061-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-48061-1	SW04-031615	Water	03/16/15 10:30	03/17/15 15:10
580-48061-2	SW05-031615	Water	03/16/15 10:50	03/17/15 15:10
580-48061-3	SW06-031615	Water	03/16/15 11:50	03/17/15 15:10
580-48061-4	SW07-031615	Water	03/16/15 12:20	03/17/15 15:10
580-48061-5	SW08-031615	Water	03/16/15 08:30	03/17/15 15:10
580-48061-6	SW09-031615	Water	03/16/15 09:40	03/17/15 15:10
580-48061-7	SW10-031615	Water	03/16/15 09:15	03/17/15 15:10
580-48061-8	SW11-031615	Water	03/16/15 12:40	03/17/15 15:10
580-48061-9	SW12-031615	Water	03/16/15 12:55	03/17/15 15:10
580-48061-10	SW13-031615	Water	03/16/15 13:30	03/17/15 15:10
580-48061-11	TB #361	Water	03/16/15 00:00	03/17/15 15:10

CHAIN OF CUSTODY FORM

Page 1 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER
 Office
 Phone: 503 943 3617
 Ship to: Lab Name TEST AMERICA
 Address 5255 9TH STE
TACOMA, WA
98424
 Contact KRIS ALLEN
 Phone 235 922 2310

ANALYSES REQUESTED

Sample No.	TAG#	Date	Time	Matrix	PCB	PAH	B270C SIM LL	PHthalATES	B270D LL	MERCURY, TOTAL	7470A LL	METALS, TOTAL	6020A LL	MERCURY, DISSOLVED	7470A LL	METALS, DISSOLVED	6020A LL	GRO NWTPI GX	BRO NWTPI DX	Extra Container	Archive	Comments
SW04-031615	22089	3/16/15	1030	SW	X																	
	22084				X																	
	22084						XX															
	22082																					
	22081							XX														
	22082									X												
	22087											X										
	22080												X									
	22081													X								
	22082															X						
	22085																	XXX				
	22084																					
	22083																	XXX				
	22083																		XX			
	22088																					

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: (signature) Date/Time: 3/12/15 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

Annapolis
 200 Harry S. Truman Pkwy
 Suite 330
 Annapolis, MD 21401

Denver
 285 Century Place
 Suite 190
 Louisville, CO 80027

Portland, Oregon
 319 SW Washington St
 Suite 1150
 Portland, OR 97204

Honolulu
 3465 Waialae Ave
 Suite 380
 Honolulu, HI 96816

Seattle
 411 1st Ave S
 Suite 550
 Seattle, WA 98104

Portland, Maine
 45 Exchange St
 Suite 200
 Portland, ME 04101

Olympia
 1205 West Bay Dr NW
 Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 2 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER

Office
 Phone: 503-943-3617

Ship to: Lab Name TEST AMERICA
 Address 5255 8TH ST E
TACOMA WA
98424

Contact KRIS ALLEN
 Phone 235-922-2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalates	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRO NTPH Gx	DRO NTPH Dx	Extra Container	Archive	Comments
22098	311415	10/27	10:50	SW	X											
22099					X											
22100						X										
22101							X									
22102								X								
22103									X							
22104										X						
22105											X					
22110												X				
22109													X			
22108														X		
22107															X	

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: COURIER Shipping Tracking No.:

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 311415 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

integral
 consulting inc.

Annapolis
 200 Harry S. Truman Pkwy
 Suite 330
 Annapolis, MD 21401

Denver
 285 Century Place
 Suite 190
 Louisville, CO 80027

Portland, Oregon
 319 SW Washington St
 Suite 1150
 Portland, OR 97204

Honolulu
 3465 Waialae Ave
 Suite 380
 Honolulu, HI 96816

Seattle
 411 1st Ave S
 Suite 550
 Seattle, WA 98104

Portland, Maine
 45 Exchange St
 Suite 200
 Portland, ME 04101

Olympia
 1205 West Bay Dr NW
 Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 3 of 10

Project: BNSF WILBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER
 Office
 Phone: 503 943 3617
 Ship to: Lab Name TEST AMERICA
 Address 5255 8TH ST E
TACOMA, WA 98424
 Contact KRIS ALLEN
 Phone 253 922 2310

ANALYSES REQUESTED

Sample No.	TAG#	Date	Time	Matrix	PCB	PAH	BATHOC	PHALATES	BATHOC LL	MERCURY, TOTAL	7470A LL	METALS, TOTAL	6020A LL	MERCURY, DISSOLVED	7470A LL	METALS, DISSOLVED	6020A LL	GR0 NWTPH GX	DR0 NWTPH DX	Extra Container	Archive	Comments
SW010-031W	22111	3/17/15	1150	SW	X																	
	22112				X																	
	22113					X																
	22114						X															
	22115							X														
	22116								X													
	22117									X												
	22118										X											
	22119											X										
	22120												X									
	22121													X								
	22122															X						
	22123																X					
	22124																	X				
	22125																		X			
	22126																			X		
	22127																				X	
	22128																					X
	22129																					X

Analysis Turn Time: Normal 10 day Rush Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: CARRIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/17/15 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

integral
consulting inc.

Annapolis
200 Harry S. Truman Pkwy
Suite 330
Annapolis, MD 21401

Denver
285 Century Place
Suite 190
Louisville, CO 80027

Portland, Oregon
319 SW Washington St
Suite 1150
Portland, OR 97204

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Honolulu, HI 96816

Seattle
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Suite 550
Seattle, WA 98104

Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101

Olympia
1205 West Bay Dr NW
Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 4 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER
 Office
 Phone: 503 943 3617
 Ship to: Lab Name TEST AMERICA
 Address 5253 8TH ST E
TACOMA WA
98024
 Contact KRIS ALLEN
 Phone 235-922-2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRG NWTPH GX	DRG NWTPH DX	Extra Container	Archive	Comments
SW07-031615	22130	3/16/15	1320	SW	X											
	22131				X											
	22129					X										
	22128					X										
	22127						X									
	22126						X									
	22125							X								
	22122								X							
	22121									X						
	22140										X					
	22136											X				
	22130											X				
	22137											X				
	22134											X				
	22135											X				

Analysis Turn Time: Normal 10 Day Rush Rush Results Needed By: _____

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other: _____

Shipped by: COURIER Shipping Tracking No. _____

Condition of Samples Upon Receipt: _____ Custody Seal Intact? _____

Relinquished by: [Signature] Date/Time: 3/17/15 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

Annapolis
 200 Harry S. Truman Pkwy
 Suite 330
 Annapolis, MD 21401

Denver
 285 Century Place
 Suite 190
 Louisville, CO 80027

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 319 SW Washington St
 Suite 1150
 Portland, OR 97204

Honolulu
 3465 Waialae Ave
 Suite 380
 Honolulu, HI 96816

Seattle
 411 1st Ave S
 Suite 550
 Seattle, WA 98104

Portland, Maine
 45 Exchange St
 Suite 200
 Portland, ME 04101

Olympia
 1205 West Bay Dr NW
 Olympia, WA 98502

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 consulting inc.

CHAIN OF CUSTODY FORM

Page 5 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN K. LOR
 Office: _____
 Phone: 503 743 3117
 Ship to: Lab Name: TEST AMERICA
 Address: 5255 8TH ST. E
TACOMA, WA
98424
 Contact: KRIS ALLEN
 Phone: 235 922 2310

ANALYSES REQUESTED

Sample No.	TRK#	Date	Time	Matrix	PCB	PAH	PHENYLS	MERCURY	NETALS	MERCURY	NETALS	6020A	6020A	6020A	6020A	6020A	6020A	6020A	6020A	Extra Container	Archive	Comments
SW08-031015	22051	3/14/15	0830	SW	X																	
	22052				X																	
	22053					X																
	22054					X																
	22055						X															
	22056						X															
	22057							X														
	22058								X													
	22059									X												
	22060										X											
	22061																					
	22062																					
	22063																					
	22064																					
	22065																					
	3/12/15	KAM																				

Analysis Turn Time: Normal 100% Rush Rush Results Needed By: _____

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other: _____

Shipped by: COURIER Shipping Tracking No. _____

Condition of Samples Upon Receipt: _____ Custody Seal Intact? _____

Relinquished by: [Signature] Date/Time: 3/12/15 1000 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AT LOW LEVEL.

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Suite 1150
Portland, OR 97204

Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816

Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104

Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101

Olympia
1205 West Bay Dr NW
Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 6 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER

Office

Phone

Lab Name

Address

Contact

Phone

Ship to:

503 943 3617TEST AMERICA5255 8th St ETACOMA WA98424KRIS ALLEN235 922 2316

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHTHALATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRO NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
SW09-031615	22063	3/16/15	9:40	SW	XX											
	22064				XX											
	22065					X										
	22069															
	22070						XX									
	22071															
	22072							X								
	22072								X							
	22074									X						
	22141										X					
	22142											X				
	22143											XXX				
	22144												XX			
	22145															
	22146															

Analysis Turn Time: Normal 10 Day Rush

Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/16/15 12:00 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

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Suite 1150
Portland, OR 97204

Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816

Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104

Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101

Olympia
1205 West Bay Dr NW
Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 7 of 10

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone

503 943 3617

Ship to:

Lab Name

Address

TEST AMERICA6255 8TH ST ETACOMA WA98424

Contact

Phone

KRIS ALLEN235 922 2316

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRD NWTPH GX	GRD NWTPH DX	Extra Container	Archive	Comments
SNID-031615	22147	3/16/15	915	SW	X											
	22148				X											
	22149															
	22150															
	22151															
	22152															
	22153															
	22154															
	22155															
	22156															
	22157															
	22158															
	22159															
	22160															
	22161															

Analysis Turn Time: Normal Today Rush Rush Results Needed By:Matrix Code: GW - Groundwater
SL - Soil SW - Surface water
SD - Sediment Other:Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/17/15 1200 Received by: _____ Date/Time: _____
(signature) (signature)Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
(signature) (signature)Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVELAnnapolis
200 Harry S. Truman Pkwy
Suite 330
Annapolis, MD 21401Denver
285 Century Place
Suite 190
Louisville, CO 80027Portland, Oregon
319 SW Washington St
Suite 1150
Portland, OR 97204Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
1205 West Bay Dr NW
Olympia, WA 98502integral
consulting inc.

CHAIN OF CUSTODY FORM

Page 6 of 10

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone

563 943 3617

Ship to:

Lab Name

Address

TEST AMERICA5255 8TH ST ETACOMA WA98424

Contact

Phone

KRIS ALLEN235 922 2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PATHALATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	ERD NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
<u>SW11-031615</u>	<u>22162</u>	<u>3/16/15</u>	<u>1240</u>	<u>SW</u>	<u>XX</u>											
	<u>22163</u>				<u>XX</u>											
	<u>22164</u>					<u>XX</u>										
	<u>22165</u>															
	<u>22166</u>						<u>XX</u>									
	<u>22167</u>						<u>XX</u>									
	<u>22168</u>							<u>X</u>								
	<u>22169</u>								<u>X</u>							
	<u>22170</u>									<u>X</u>						
	<u>22171</u>										<u>X</u>					
	<u>22172</u>											<u>XX</u>				
	<u>22173</u>											<u>XX</u>				
	<u>22174</u>											<u>XX</u>				
	<u>22175</u>											<u>XX</u>				
	<u>22176</u>											<u>XX</u>				

Analysis Turn Time: Normal 10 Day Rush

Rush Results Needed By:

Matrix Code:

GW - Groundwater

SL - Soil

SW - Surface water

SD - Sediment

Other:

Shipped by: COMPUTER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/16/15 1200

Received by:

(signature)

Date/Time: _____

Relinquished by:

(signature)

Date/Time: _____

Received by:

(signature)

Date/Time: _____

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVEL


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Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 1 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER

Office

Phone

Ship to:

Lab Name

Address

Contact

Phone

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRO NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
SW12-031615	22177	3/12/15	1255	SW	X											
	22178				X											
	22179					X										
	22180					X										
	22181						X									
	22182						X									
	22183							X								
	22184								X							
	22185									X						
	22186										X					
	22187											X				
	22188											X				
	22189											X				
	22190												X			
	22191												X			

Analysis Turn Time: Normal 10 day Rush

Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: COURIER Shipping Tracking No.:

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/12/15 1200 Received by:

(signature)

Date/Time: _____

Relinquished by:

(signature)

Date/Time: _____

Received by:

(signature)

Date/Time: _____

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVEL

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Olympia, WA 98502

CHAIN OF CUSTODY FORM

Page 10 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: TSUND K MARTIN

Integral Contact: GLENN ESQUER
 Office: 503 943 3617
 Phone: _____
 Ship to: Lab Name: TEST AMERICA
 Address: 5255 8TH ST. E
TACOMA, WA 98424
 Contact: KRISTIAN
 Phone: 253 922 2310

ANALYSES REQUESTED

Ship to:					Office 503 943 3617											Extra Container		Archive		Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Lab Name Address Contact Phone					TEST AMERICA 5255 8TH ST. E TACOMA, WA 98424 KRIS ALLEN 253 922 2310																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Sample No.	TRIG #	Date	Time	Matrix	PCB - TOTAL PCB - A PCB - B PCB - C PCB - D PCB - E PCB - F PCB - G PCB - H PCB - I PCB - J PCB - K PCB - L PCB - M PCB - N PCB - O PCB - P PCB - Q PCB - R PCB - S PCB - T PCB - U PCB - V PCB - W PCB - X PCB - Y PCB - Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
SW13-03145	22192	3/14/15	1330	SW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

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consulting inc.

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By: _____

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other: _____

Shipped by: TACOMA Shipping Tracking No. _____

Condition of Samples Upon Receipt: _____ Custody Seal Intact? _____

Relinquished by: [Signature] Date/Time: 3/11/15 12:00 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AT LOW LEVEL.

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Suite 550
Seattle, WA 98104

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45 Exchange St
Suite 200
Portland, ME 04101

Olympia
1205 West Bay Dr NW
Olympia, WA 98502

Integral Consulting Inc.
319 SW Washington Street
Suite 1150
Portland, OR 97204

telephone: 503.284.5545
facsimile: 503.284.5755
www.integral-corp.com



MEMORANDUM

To: Test America Portland Sample Receiving and Kris Allen (Test America Tacoma)

From: Jane Sund, Integral 

Date: 3/17/15

Subject: BNSF Willbridge Samples

Project No.: C921 0202

At approximately 1445, the Test America courier arrived at the Integral Portland office to pick up the BNSF Willbridge samples. The courier was not able to fit all 10 sample coolers in her vehicle. The courier took 6 of the 10 coolers and all of the COCs (COCs were sealed inside cooler 10 of 10) as that was all that would fit in her vehicle. The courier indicated she would be back to pick up the remaining 4 this afternoon and that the lab (Test America) had told her this would be okay. I was not here to talk to the courier otherwise I would not have allowed her to take the coolers unless she could take them all since they were all under one chain which was affixed inside cooler 10 of 10 (which happened to be one of the 6 coolers she took in her first trip to the lab).

A copy of the chain-of-custody forms are included here.

Please note that the Test America Tacoma area code was written in error. Area code 235 appears on COCs 1-9 and it should be 253.

CHAIN OF CUSTODY FORM



580-48061 Chain of Custody

Page 1 of 10Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone

503 943 3617

Ship to:

Lab Name

TEST AMERICA

Address

5255 8TH STE
TACOMA, WA
98424

Contact

KRIS ALLEN

Phone

235 922 2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB 8082A LL	PAH 8270C SIM LL	PHthalATES 8270D LL	MERCURY, TOTAL 7470A LL	METALS, TOTAL 6020A LL	MERCURY, DISSOLVED 7470A LL	METALS, DISSOLVED 6020A LL	GRO NWTPH GX DRO NWTPH DX	Extra Container	Archive	Comments
<u>SW04-031615</u>	<u>22085</u>	<u>3/11/15</u>	<u>1030</u>	<u>SW</u>	X										
	<u>22086</u>				X										
	<u>22084</u>					X									
	<u>22083</u>					X									
	<u>22081</u>						X								
	<u>22082</u>						X								
	<u>22087</u>							X							
	<u>22090</u>								X						
	<u>22091</u>									X					
	<u>22092</u>										X				
	<u>22095</u>											X			
	<u>22094</u>											X			
	<u>22093</u>											X			
	<u>22087</u>											X			
	<u>22088</u>											X			

Analysis Turn Time: Normal 10 DAY Rush

Rush Results Needed By:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/11/15 1200

Received by:

Glenn A. Lehman

(signature)

Date/Time: 3/11/15 1510

Relinquished by:

(signature)

Date/Time:

Received by:

(signature)

Date/Time:

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVELAnnapolis
200 Harry S. Truman Pkwy
Suite 330
Annapolis, MD 21401Denver
285 Century Place
Suite 190
Louisville, CO 80027Portland, Oregon
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Suite 1150
Portland, OR 97204Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
1205 West Bay Dr NW
Olympia, WA 985020.6, 0.9, 1.0, 0.6, 2.4 IRP-2

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone

563-943-3617

Ship to:

Lab Name

TEST AMERICA

Address

5255 8TH ST. ETACOMA, WA98424

Contact

KRIS ALLEN

Phone

235-922-2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalates	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRO NUTPH G-X	DRO NUTPH DX	Extra Container	Archive	Comments
SN05-031615	22098	3/11/15	1050	SW	X											
	22099				X											
	22097					X										
	22096					X										
	22101						X									
	22100						X									
	22102							X								
	22103								X							
	22104									X						
	22105										X					
	22110											X				
	22109											X				
	22108											X				
	22106											X				
	22107											X				

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By:Matrix Code: GW - Groundwater
SL - Soil SW - Surface water
SD - Sediment Other:Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/17/15 1200

Received by:

Glenn A. Lehm

(signature)

Date/Time: 3/17/15 1510

Relinquished by:

(signature)

Date/Time: _____

Received by: _____

(signature)

Date/Time: _____

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVELAnnapolis
200 Harry S. Truman Pkwy
Suite 330
Annapolis, MD 21401Denver
285 Century Place
Suite 190
Louisville, CO 80027Portland, Oregon
319 SW Washington St
Suite 1150
Portland, OR 97204Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
1205 West Bay Dr NW
Olympia, WA 98502

0.6, 0.9, 1.0, 0.6, 2.4 TRIP-L

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consulting inc.

CHAIN OF CUSTODY FORM

Page 3 of 10

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENN ESLER
 Office
 Phone: 503 943 3617
 Ship to: Lab Name TEST AMERICA
 Address 5255 8TH ST E
TACOMA, WA 98424
 Contact KRIS ALLEN
 Phone 235 922 2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	8082A LL	PAH	8270C SIM LL	PHthalATES	8270D LL	MERCURY, TOTAL	7470A LL	METALS, TOTAL	6020A LL	MERCURY, DISSOLVED	7470A LL	METALS, DISSOLVED	6020A LL	GR0 NWTPH GX	DR0 NWTPH DX	Extra Container	Archive	Comments
SW000-021615	22111	3/11/15	1150	SW	X																		
	22112				X																		
	22116						X																
	22115						X																
	22114								X														
	22113								X														
	22117										X												
	22118												X										
	22125														X								
	22124															X							
	22121																		X				
	22122																		X				
	22123																		X				
	22120																			X			
	22119																			X			

Analysis Turn Time: Normal 10 Day Rush Rush Results Needed By:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/12/15 1200 Received by: Ramona Lehman Date/Time: 3/17/15 1510

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL

Annapolis
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Olympia, WA 98502

0.6, 0.9, 1.0, 0.6, 2.4, 10, 18, 7, 6, 5, 4, 3, 2, 1

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone: 503 943 3617

Ship to:

Lab Name

TEST AMERICA

Address

5255 8TH ST. ETACOMA, WA98424

Contact

KRIS ALLEN

Phone

235-922-2316

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalates	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRD NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
SW07-031615	22130	3/16/15	1220	SW	X											
	22131				XX											
	22129					XX										
	22128					XX										
	22127						XX									
	22126							X								
	22133								X							
	22132									X						
	22131										X					
	22140											X				
	22136												XX			
	22138												XX			
	22137												XX			
	22134												XX			
	22135												XX			

Analysis Turn Time: Normal / 10 Day Rush

Rush Results Needed By:

Matrix Code: GW - Groundwater
 SL - Soil SW - Surface water
 SD - Sediment Other:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by: [Signature]

(signature)

Date/Time: 3/17/15 1200Received by: Clara A. Lohme

(signature)

Date/Time: 3/17/15 1510

Relinquished by: _____

(signature)

Date/Time: _____

Received by: _____

(signature)

Date/Time: _____

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVEL ^{2.3 3.5} _{1.7 3.2 2.1}

IR/P-2

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 Suite 190
 Louisville, CO 80027

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Seattle
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 Suite 550
 Seattle, WA 98104

Portland, Maine
 45 Exchange St
 Suite 200
 Portland, ME 04101

Olympia
 1205 West Bay Dr NW
 Olympia, WA 98502

integral
 consulting inc.

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GUENN ESLER
 Office
 Phone: 503 943 3617
 Ship to: Lab Name TEST AMERICA
 Address 5255 BTHST. E
TACOMA, WA
98121
 Contact KRIS ALLEN
 Phone 235 922 2310

ANALYSES REQUESTED

Sample No.	TKG#	Date	Time	Matrix	PCB	PAH	PHTHALATES	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GRO NWTPHGX	DRO NWTPHDX	Extra Container	Archive	Comments
SW08-031615	22051	3/14/15	030	SW	X											
	22052				X											
	22053					X										
	22054					X										
	22055						X									
	22056						X									
	22057							X								
	22058								X							
	22059									X						
	22060										X					
	22061											X				
	22062											X				
	22063											X				
	22064											X				
	22065											X				
<u>3/17/15 KAM - 0</u>																

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/17/15 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL. 2.3 3.5 1.7 3.2 2.4 R/P-L

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Suite 1150
Portland, OR 97204

Honolulu
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Suite 380
Honolulu, HI 96816

Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104

Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101

Olympia
1205 West Bay Dr NW
Olympia, WA 98502

Project: BNSF WILLBRIDGE YARD
 Samplers: J SUND K MARTIN

Integral Contact: GLENNE SLER

Office
 Phone: 303 943 3617

Ship to: Lab Name TEST AMERICA
 Address 5255 8th St. E
TACOMA, WA 98424

Contact KRIS ALLEN
 Phone 235 922 2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB 8082A LL	PAH 8270C SIM LL	PHthalATES 8270D LL	MERCURY, TOTAL 7470A LL	METALS, TOTAL 6020A LL	MERCURY, DISSOLVED 7470A LL	METALS, DISSOLVED 6020A LL	GRO NWT PH GX	DRO NWT PH DX	Extra Container	Archive	Comments
SNO 9-031615	22063	3/16/15	940	SW	X											
	22067				X											
	22068					X										
	22069					X										
	22070						X									
	22071							X								
	22072								X							
	22073								X							
	22074									X						
	22141										X					
	22142											X				
	22143												X			
	22144												X			
	22145												X			
	22146												X			
	22145 (KAM)															

Analysis Turn Time: Normal 10 DAY Rush Rush Results Needed By:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt: Custody Seal Intact?

Relinquished by: [Signature] Date/Time: 3/17/15 1200 Received by: _____ Date/Time: _____
 (signature) (signature)

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 (signature) (signature)

Special Instructions: * PLEASE RUN ALL ANALYSES AS LOW LEVEL 2.3 3.5 IR/P-L
1.7 3.2 2.4

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 Suite 550
 Seattle, WA 98104

Portland, Maine
 45 Exchange St
 Suite 200
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Olympia
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 Olympia, WA 98502

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone: 503 943 3617

Ship to:

Lab Name

TEST AMERICA

Address

5255 8TH ST ETACOMA, WA98424

Contact

KRIS ALLEN

Phone

235 922 2316

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	B270C SIM LL	PHthalATES	B270D LL	MERCURY, TOTAL	7470A LL	METALS, TOTAL	6020A LL	MERCURY, DISSOLVED	7470A LL	METALS, DISSOLVED	6020A LL	GRD NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
8W10-031615	22147	3/16/15	915	SW	X																	
	22148				X																	
	22149						X															
	22150						X															
	22151							X														
	22152							X														
	22153								X													
	22154									X												
	22155										X											
	22156											X										
	22157																	X				
	22158																	X				
	22159																	X				
	22160																	X				
	22161																	X				

Analysis Turn Time: Normal 10 Day Rush Rush Results Needed By:Matrix Code: GW - Groundwater
SL - Soil SW - Surface water
SD - Sediment Other:Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/17/15 1200

Received by:

(signature)

Date/Time:

Relinquished by:

(signature)

Date/Time:

Received by:

(signature)

Date/Time:

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVEL3.5 1.7
3.2 2.3 2.4
1.7Annapolis
200 Harry S. Truman Pkwy
Suite 330
Annapolis, MD 21401Denver
285 Century Place
Suite 190
Louisville, CO 80027Portland, Oregon
319 SW Washington St
Suite 1150
Portland, OR 97204Honolulu
3465 Waialae Ave
Suite 380
Honolulu, HI 96816Seattle
411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
1205 West Bay Dr NW
Olympia, WA 98502

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone: 503 943 3617

Ship to:

Lab Name

Address

TEST AMERICA5255 8TH ST. ETACOMA, WA98424

Contact

Phone

KRIS ALLEN235 922 2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB	PAH	PHthalates	MERCURY, TOTAL	METALS, TOTAL	MERCURY, DISSOLVED	METALS, DISSOLVED	GR0 NWTPH GX	DR0 NWTPH DX	Extra Container	Archive	Comments
SW11-031615	22162	3/16/15	1240	SW	X											
	22163				X											
	22164					XX										
	22165															
	22166						XX									
	22167															
	22168							X								
	22169								X							
	22170									X						
	22171										X					
	22172											XX				
	22173											XXX				
	22174											XX				
	22175												XX			
	22176															

Analysis Turn Time: Normal 10 Day Rush

Rush Results Needed By:

Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by:

(signature)

Date/Time: 3/17/15 1200

Received by:

Glenn A. Elmer

(signature)

Date/Time: 3/17/15 1510

Relinquished by:

(signature)

Date/Time: _____

Received by: _____

(signature)

Date/Time: _____

Special Instructions:

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consulting inc.Annapolis
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Suite 330
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411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
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Olympia, WA 98502

0.6, 0.9, 1.0, 0.6, 0.4 IRIP-L

11 10 9 8 7 6 5 4 3 2 1

CHAIN OF CUSTODY FORM

Page 9 of 10

Project: BNSF WILLBRIDGE YARDSamplers: J SUND K MARTINIntegral Contact: GLENN ESLER

Office

Phone: 503 943 3617

Ship to:

Lab Name

TEST AMERICA

Address

5255 8TH ST. ETACOMA, WA98424

Contact

KRIS ALLEN

Phone

235-922-2310

ANALYSES REQUESTED

Sample No.	TAG #	Date	Time	Matrix	PCB 8082A LL	PAH 8270C SIM LL	PHthalATES 8270D LL	MERCURY, TOTAL 7470A LL	METALS, TOTAL 6020A LL	MERCURY, DISSOLVED 7470A LL	METALS, DISSOLVED 6020A LL	GRO NWTPH GX	DRO NWTPH DX	Extra Container	Archive	Comments
SW12-031615	22177	3/11/15	1255	SW	X											
	22178				X											
	22179					X										
	22180					X										
	22181						XX									
	22182							X								
	22183								X							
	22184									X						
	22185										X					
	22186											X				
	22187												X			
	22188													X		
	22189													X		
	22190														X	
	22191														X	

Analysis Turn Time: Normal 10 Day Rush Rush Results Needed By:Shipped by: COURIER Shipping Tracking No.

Condition of Samples Upon Receipt:

Custody Seal Intact?

Relinquished by: [Signature]

(signature)

Date/Time: 3/12/15 1200Received by: Glenn A. Johnson

(signature)

Date/Time: 3/17/15 1510

Relinquished by: _____

(signature)

Date/Time: _____

Received by: _____

(signature)

Date/Time: _____

Special Instructions:

* PLEASE RUN ALL ANALYSES AS LOW LEVELintegral
consulting inc.Annapolis
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Suite 330
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411 1st Ave S
Suite 550
Seattle, WA 98104Portland, Maine
45 Exchange St
Suite 200
Portland, ME 04101Olympia
1205 West Bay Dr NW
Olympia, WA 98502

0.6, 0.9, 1.0, 0.6, 2.4 IRP-L

integral
consulting inc.

Login Sample Receipt Checklist

Client: Integral Consulting Inc

Job Number: 580-48061-1

Login Number: 48061

List Source: TestAmerica Seattle

List Number: 1

Creator: Lehman, Clarissa A

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Integral Consulting Inc

Job Number: 580-48061-1

Login Number: 48061

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 03/19/15 02:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATTACHMENT D

DATA VALIDATION



SUMMARY OF STAGE 2A DATA VALIDATION FOR TESTAMERICA LABORATORY REPORT 580-48061-1

INTRODUCTION

This memorandum summarizes the findings of Stage 2A data validation of 10 water samples and 1 trip blank collected at the BNSF Willbridge Yard in Portland, Oregon. The samples were analyzed by TestAmerica Laboratories, Inc. (TestAmerica) of Tacoma, Washington, for the following:

- Phthalates by U.S. Environmental Protection Agency (EPA) Method 8270D
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM
- Polychlorinated biphenyls by EPA Method 8082A
- Semivolatile petroleum products by Washington State Department of Ecology (WDOE) Method NWTPH-Dx
- Total and dissolved mercury by EPA Method 7470A
- Volatile petroleum products by WDOE Method NWTPH-Gx.

Total and dissolved metals analysis by EPA Method 6020 was performed by TestAmerica of Irvine, California.

Data were reported in sample delivery group 580-48061-1.

DATA VALIDATION

The Stage 2A validation involved completeness and compliance checks of sample receipt conditions and sample-related quality control results only. The data validation was based on criteria described in EPA's *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008) and *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA 2010), the referenced analytical methods, and laboratory-established quality control acceptance limits.

The quality assurance and quality control parameters reviewed are listed below.

Findings

The following are the findings from the data validation:

- Data Package Completeness—The data package contained all information necessary for a Stage 2A review, with the following exception.
 - Chain-of-custody forms for transfer of samples from TestAmerica in Portland to TestAmerica in Seattle and TestAmerica in Irvine were not in the data package. This documentation was provided by the laboratory upon request.
- Chain of Custody and Sample Receipt—Samples were collected in laboratory-supplied containers and were stored and transported to analytical laboratories in chilled coolers.
- Holding Times—Samples were analyzed within the holding time for each analytical method.
- Blanks—There were no detections in the method blanks and trip blank, with the exceptions noted below. All detections in the method blanks were less than the reporting limit, and when method blank contamination was found, results in the associated samples that were also less than the reporting limit (less than 5 times the reporting limit for bis(2-ethylhexyl) phthalate per EPA National Functional Guidelines) were qualified as not detected (U-MB):
 - #2 Diesel (C10-C24) was detected in the method blanks associated with the NWTPH-Dx analysis. The #2 diesel (C10-C24) results in eight samples were qualified as not detected (U-MB).
 - Gasoline was detected in the method blank associated with the NWTPH-Gx analysis. The detected gasoline result in the trip blank sample was qualified as not detected (U-MB).
 - Anthracene and phenanthrene were detected in the method blank associated with the PAH analysis. The anthracene results in three samples and the phenanthrene results in nine samples were qualified as not detected (U-MB).
 - Butyl benzyl phthalate and di-n-butyl phthalate were detected in the method blank associated with the phthalate analysis. The butyl benzyl phthalate results in seven samples and the di-n-butyl phthalate results in three samples were qualified as not detected (U-MB).
 - Dissolved arsenic, total barium, and total lead were detected in the method blank associated with metals analysis. All results for these analytes were greater than the reporting limit; no qualifiers were applied to the data.
- Surrogates—Surrogate compounds were added to all samples for organic analyses, and all surrogate recoveries were within laboratory acceptance limits, with the exceptions noted below:

- Three surrogates in the phthalate laboratory control sample (LCS) were below control limits. All surrogate recoveries in the analytical samples were within control limits; no qualifiers were applied to the data.
- Laboratory Control Samples and Laboratory Control Samples Duplicates (LCS/LCSDs)—LCS/LCSDs were analyzed at the required frequency of one per batch. All LCS recoveries and relative percent difference (RPD) values were within laboratory acceptance limits, with the following exceptions:
 - The #2 diesel (C10-C24) RPD value in the LCS/LCSD was greater than the laboratory acceptance limit. The #2 diesel (C10-C24) results in eight samples were estimated (J-REP).
 - The bis(2-ethylhexyl) phthalate RPD in the LCS/LCSD was greater than the laboratory acceptance limit. The bis(2-ethylhexyl) phthalate results in two samples were estimated (J-REP).
 - The percent recovery for benzo(k)fluoranthene in the LCS/LCSD was below the laboratory acceptance limit. Results for benzo(k)fluoranthene in 10 samples were estimated (J/UJ-LCS).
- Matrix Spikes and Matrix Spike Duplicates (MS/MSDs)—MS/MSDs were analyzed at the required frequency of one MS/MSD pair per batch for metals analysis only. All MS/MSD recoveries and RPD values were within laboratory acceptance limits.
- Laboratory Duplicates—Laboratory duplicates were analyzed for mercury only. All RPD values were within laboratory acceptance limits.
- Sample Results—Additional result issues are as follows:
 - The #2 diesel (C10-C24) results in two samples were qualified as estimated (J-Mi) because of potential matrix interference.
 - The laboratory J-flagged phthalate, PAH, motor oil (<C24-C36), #2 diesel (C10-C24), gasoline, and metals results with concentrations less than the reporting limit. These results should be considered estimated.
 - The reported method detection limits for benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, total arsenic, and dissolved arsenic did not meet project-specific requirements.

Overall Assessment

The data meet the criteria outlined above, with the noted exceptions. Data were qualified for method blank contamination, laboratory imprecision, and matrix interference. All results are usable for their intended purpose, and completeness was 100 percent.

REFERENCES

USEPA. 2008. Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. USEPA-540-R-08-01. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology, Washington, DC. June 2008.

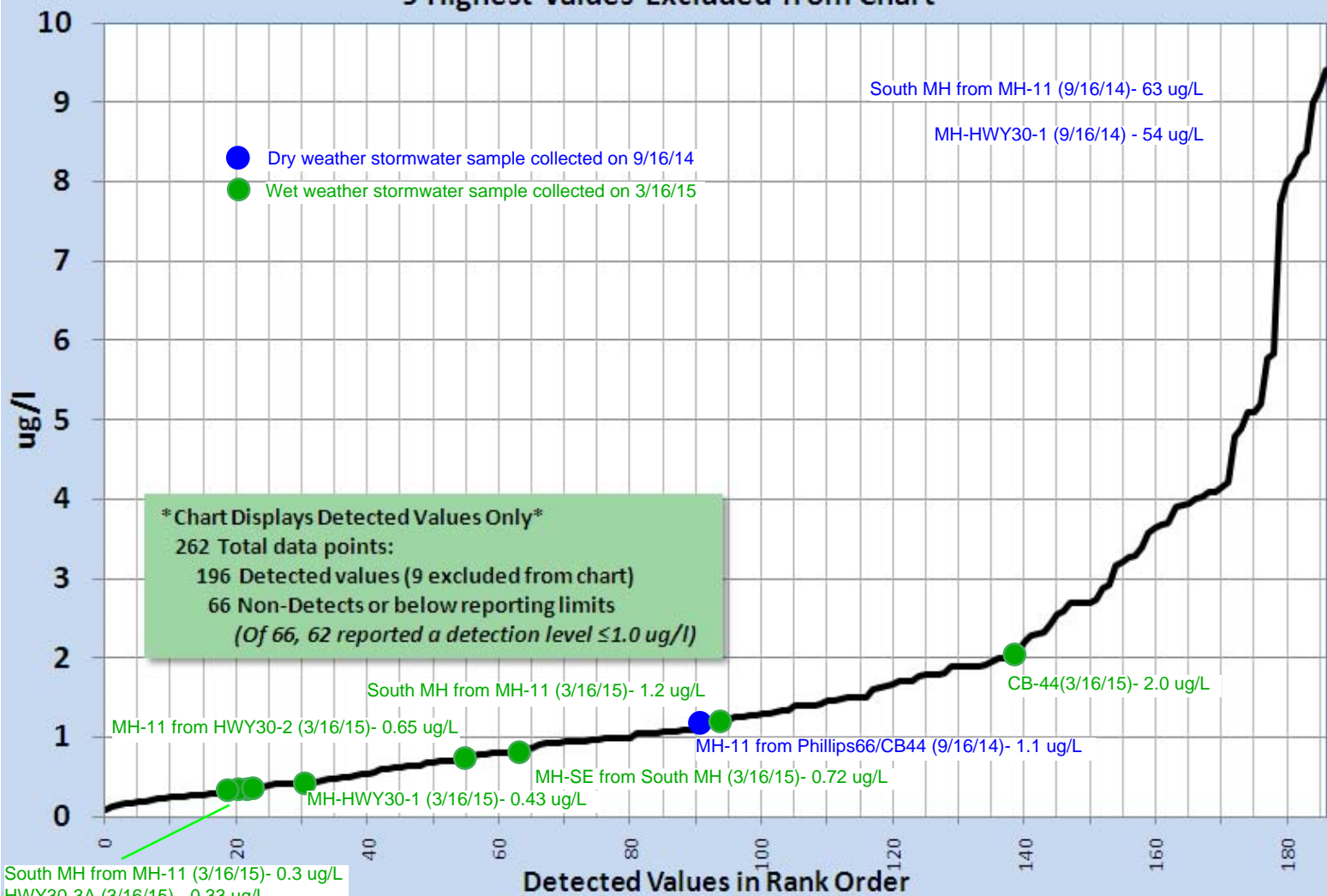
USEPA. 2010. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review. USEPA- 540-R-10-011. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology, Washington, DC. January 2010.

ATTACHMENT E

DEQ RANK ORDER STORMWATER CHARTS

Arsenic (ug/l) in Stormwater at Portland Harbor Heavy Industrial Sites

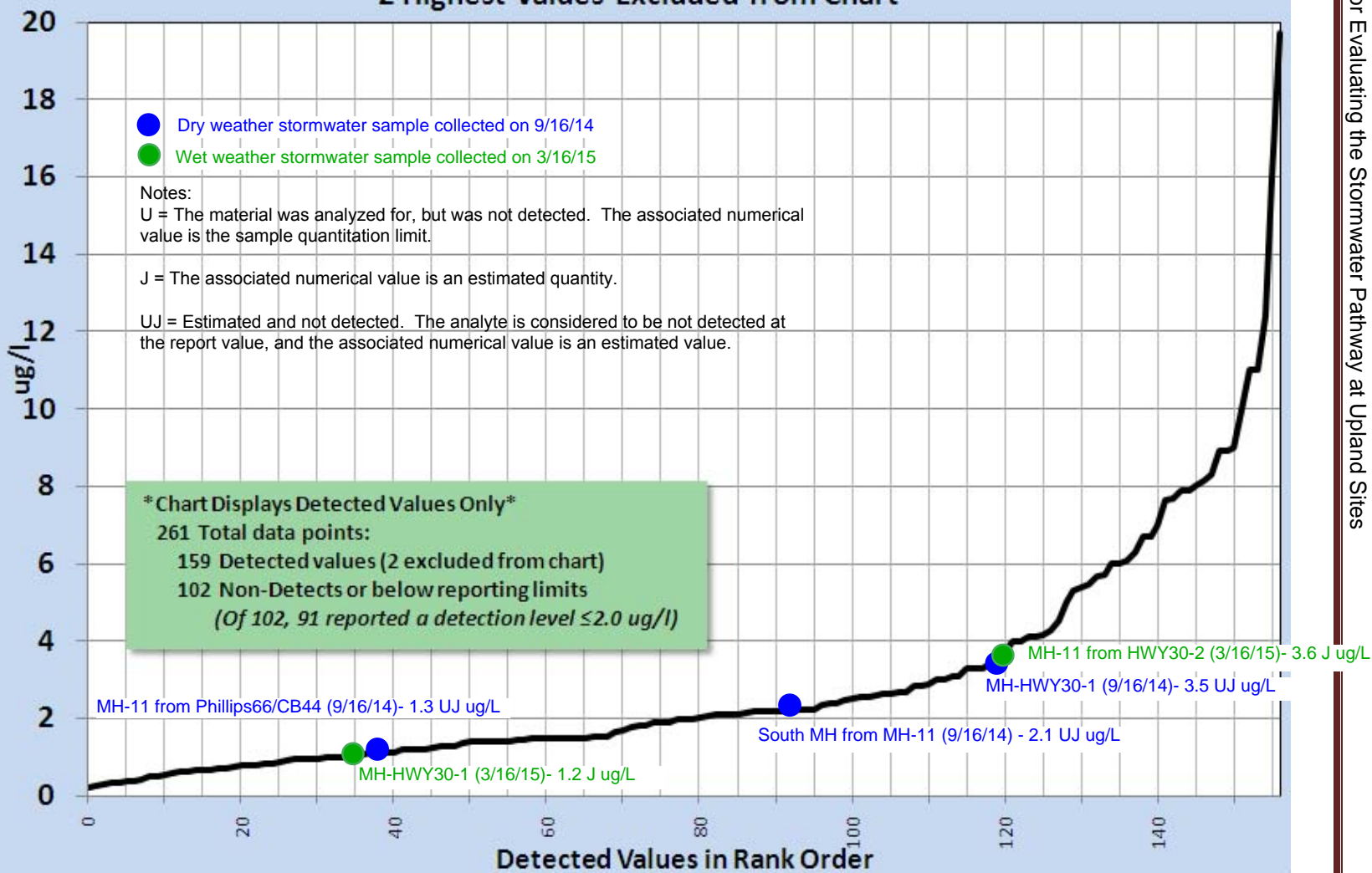
9 Highest Values Excluded from Chart



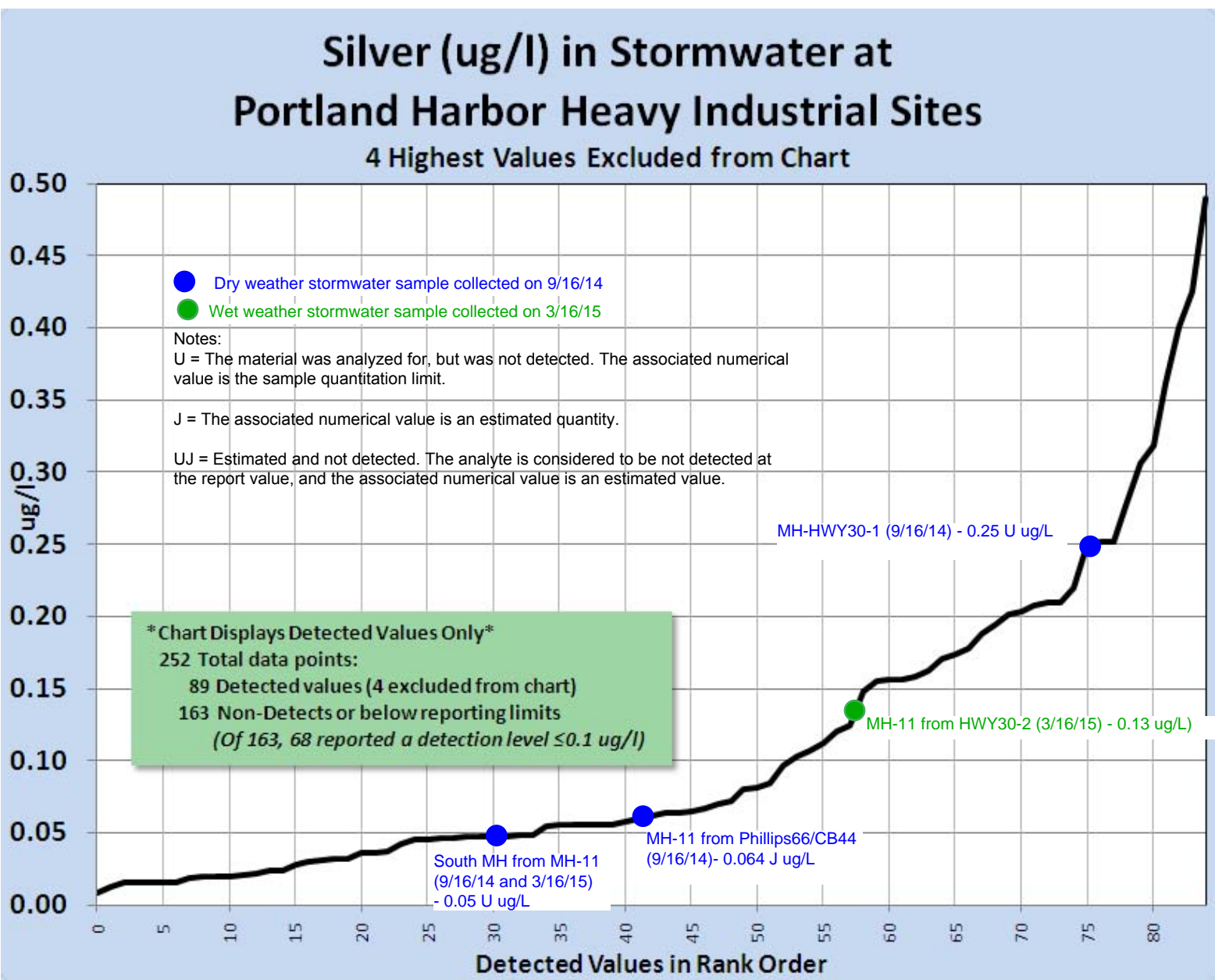
ARSENIC

Bis(2-Ethylhexyl)phthalate in Stormwater at Portland Harbor Heavy Industrial Sites

2 Highest Values Excluded from Chart



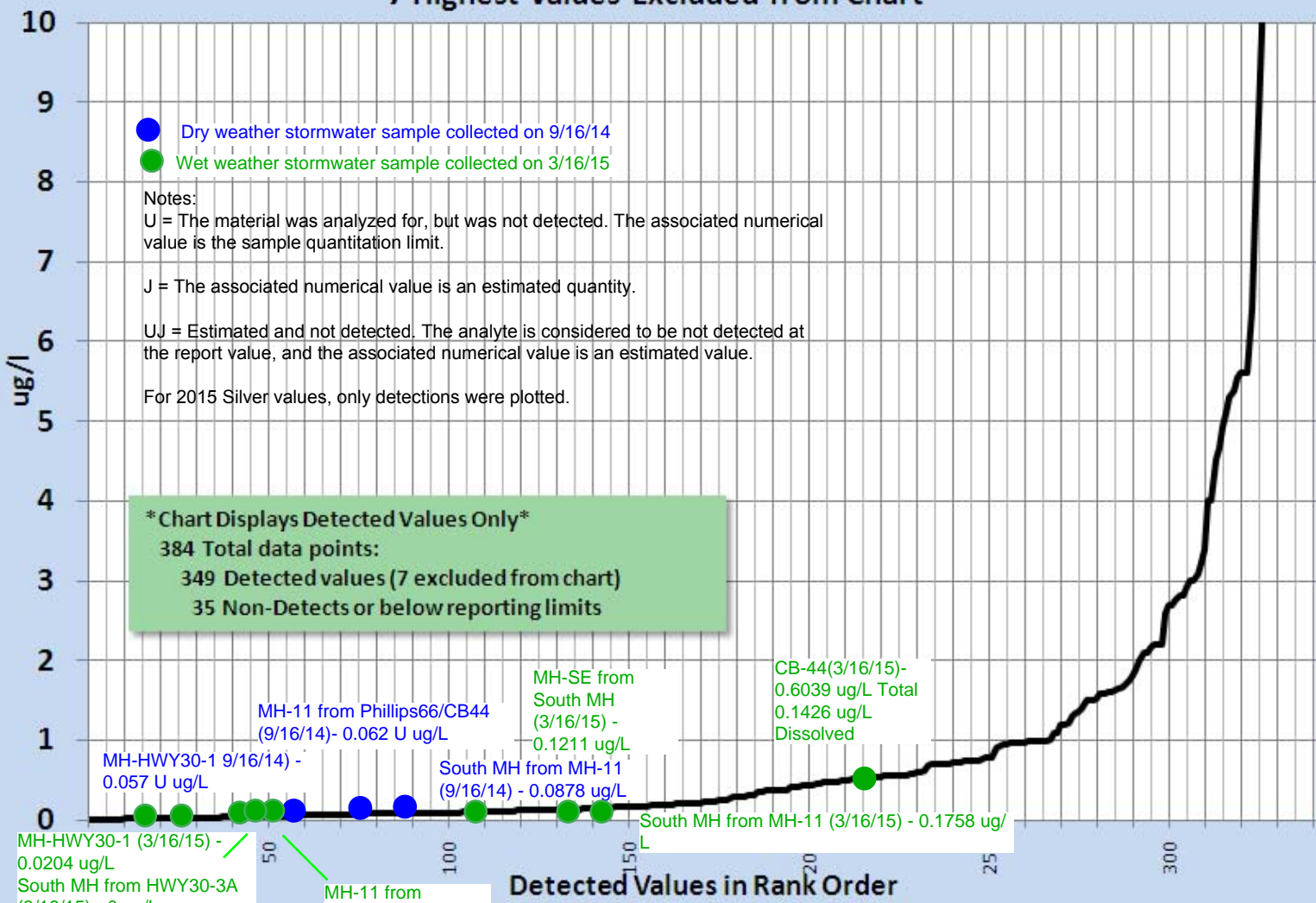
BEHP



SILVER

Total PAHs (ug/l) in Stormwater at Portland Harbor Heavy Industrial Sites

7 Highest Values Excluded from Chart



TOTAL PAHS

ATTACHMENT F

TABLES 5-1 AND 5-2 FROM
XPA/SCE REPORT

Table 5-1 Catch Basin Sediment Chemical Data

Chemical Type			TPH	SVOCs								
Chemical Name Unit			#2 Diesel (C10-C24) mg/kg	Motor Oil (>C24-C36) mg/kg	1,2-Benzphen anthracene µg/kg	1- Methylnaph thalene µg/kg	2-Methylnaph thalene µg/kg	Acenaphthene µg/kg	Acenaph- thylene µg/kg	Anthracene µg/kg	Benzo[a] anthracene µg/kg	Benzo[a] pyrene µg/kg
JSCS Screening Level			NS	NS	1,290	NS	200	300	200	845	1,050	1,450
Direct Contact Screening Level			2,500	5,000	NS	NS	NS	19,000,000	NL	93,000,000	21,000	2,100
Location ID	Depth (ft bgs)	Sample Date										
CB-44	Catch basin	11/12/2009	< 31	230	910	< 33	< 33	49	54	240	690	1000

Chemical Type			SVOCs									
Chemical Name			Benzo [b]fluoranthene	Benzo[g,h,i]perylene	Benzo [k]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene
Unit			µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
		JSCS Screening Level	NA	300	13,000	1,300	2,230	536	100	561	1,170	1,520
		Direct Contact Screening Level	21,000	NS	210,000	NS	8,900,000	12,000,000	21,000	580,000	NS	6,700,000
Location ID	Depth (ft bgs)	Sample Date										
CB-44	Catch basin	11/12/2009	1,300	810	420	150	1,800	44	660	48	730	2,200

Chemical Type			Metals							
Chemical Name			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		JSCS Screening Level	7	NA	1	111	17	0.07	2	5
		Direct Contact Screening Level	13	60,000	>Max	NS	800	93	5,100	1,500
Location ID	Depth (ft bgs)	Sample Date								
CB-44	Catch basin	11/12/2009	4.5	79	< 0.26	16	58	< 0.025	< 0.66	< 0.26

- Notes:
- BGS Below ground surface
 - Bold** Detected Value
 - JSCS Portland Harbor Joint Source Control Strategy
 - NS No screening level
 - BLUE Value detected at or above the JSCS screening level
 - < non-detect value at the reporting limit

Table 5-2 Stormwater Chemical Data

Chemical Type			Conventionals	Phalates						PCBs				
Chemical Name Total/Dissolved Unit			Total Suspended Solids N mg/L	Benzyl Butyl Phthalate T µg/L	Bis(2- ethylhexyl)p hthalate T µg/L	Diethyl Phthalate T µg/L	Dimethyl Phthalate T µg/L	Di-n-butyl phthalate T µg/L	Di-n-octyl phthalate T µg/L	PCB-1221 N µg/L	PCB-1242 N µg/L	PCB-1248 N µg/L	PCB-1254 N µg/L	PCB-1260 N µg/L
JSCS Screening Levels			NA	3	2.2	3	3	3	3	0.96	0.034	0.034	0.034	0.034
Location ID	Sample Date	Sample Matrix												
Northern Storm Drain Crossing														
SW-1 - upgradient	11/12/2009	Storm Water	1,300	< 1.89	< 1.89	< 1.89	< 1.89	< 1.89	< 9.43	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47
SW-1a - upgradient	11/18/2010	Storm Water	196	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.0971	< 0.194	< 0.0971	< 0.0971	< 0.0971
SW-2 - downgradient	11/18/2010	Storm Water	197	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.0952	< 0.190	< 0.0952	< 0.0952	< 0.0952
Southern Storm Drain Crossing														
SW-3 - upgradient	11/12/2009	Storm Water	700	< 1.89	2.88	< 1.89	< 1.89	< 1.89	2.21	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47
SW-4 - downgradient	11/12/2009	Storm Water	3.2	< 0.943	< 0.943	< 0.943	< 0.943	< 0.943	< 0.943	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47

- Notes:
- NA Not Available
 - Green Reporting limit at or above the JCSC screening level for non-detect sample
 - Bold Detected value
 - Blue Value detected at or above JSCS screening level
 - JSCS Portland Harbor Joint Source Control Strategy
 - < non-detect value at the reporting limit
 - T Total
 - N Not applicable